Phase 1 Geoenvironmental Risk Assessment and Coal Mining Risk Assessment

REDBROOK ROAD
GAWBER
BARNSLEY

for

Cadam Construction Limited

Report Number 4124

May 2021

Michael D Joyce Associates LLP
Geotechnical and Geoenvironmental Consultants
Charnock Court 6 South Parade Wakefield West Yorkshire WF1 1LR UK
T +44(0)1924 360458 **E** mdja@geoenvironmental.co.uk **W** www.geoenvironmental.co.uk

Phase 1 Geoenvironmental Risk Assessment and Coal Mining Risk Assessment

REDBROOK ROAD, GAWBER, BARNSLEY

Contents

1. Introduction

2. The Site

3. Site History

4. Geology and Coal Mining Risk Assessment

5. Hydrogeology and Flooding

6. GroundSure Enviro-Insight and Geo-Insight Reports

7. Contaminated Land and Invasive Plants

8. Radon

9. Geoenvironmental Risk Assessment

Procedure Notes

Figures

Figure 1 Site Location

Figure 2 Site Plan and Development Proposals

Figure 3 Conceptual Site Model

Appendices

Appendix 1 GroundSure Enviro-Insight and Geo-Insight Reports

Appendix 2 Historical Maps

Appendix 3 Coal Authority Mining Report

Standard Appendices A and B

1 INTRODUCTION

1.1 On behalf of Cadam Construction Limited, a Phase I Geoenvironmental and Geotechnical Assessment (Desk Study) and Coal Mining Risk Assessment has been carried out at Redbrook Road in Barnsley. It is proposed to redevelop the site with residential accommodation.

1.2 The purpose of the desk study was to review and assess information on the site including geological, mining and hydrogeological data, to review the past history of the site and its environmental setting, and to determine if there are any geotechnical or geoenvironmental hazards that may impair its safe and economic development.

1.3 The study has not included checks on services on or adjacent to the site, and no structural or asbestos surveys have been carried out.

2 THE SITE

2.1 The site covers an area of approximately 0.18 hectares. It is located to the west side of Redbrook Road, approximately 2km northwest of the centre of Barnsley. The Ordnance National Survey Grid Reference is 432130, 407710 and it lies at approximately 86 mAOD. Figure 1 shows the general site location, whilst figure 2 shows the site in more detail.

2.2 The site was inspected on 14th May 2021. Access onto the site was not possible, although a good view was possible from the boundary.

2.3 The site is located to the west of Redbrook Road. Redbrook Mill Close lies to the south, with a few shops to the north. These three sides are enclosed by a brick and palisade fence, with an access point off Redbrook Mill Close. An electricity sub-station lies at the northeastern corner of the site.

2.4 The western boundary is marked by an intermittent brick retaining wall, retaining ground that rises up to the west. The retaining wall appears to be part of an older building that was 'cut' into the slope.

2.5 The site itself is flat-lying and mainly covered by a hardcore of larger single sized stone. An area of concrete and tarmac hardstanding lies at the northern end of the site, but it was not possible to determine whether this extended below the stoned area.



View of site from south



View of site from north



Northern section of site



Mid section of site

3 SITE HISTORY

3.1 The following archival Ordnance Survey maps have been examined to trace the past development of the site. These are reproduced in Appendix 2 with the current site boundary superimposed on them. The apparent displacement on the older maps is due to a change in Ordnance Survey co-ordinates.

Scale and Year of Publication			
6" to 1 mile	1850	1:2500	1893
	1891		1906
	1904		1959
	1929		1969
	1938		1970
	1948		1971
	1956		1977
			1978
			1980
1:10,000	1973	1:1250	1959
	1982		1975
	1993		1991
	2001		1993
	2010		2003
	2021		

3.2 The earliest map of 1850 shows the site to be occupied by Redbrook Bleach Works. This is confirmed by the larger scale map of 1893, which also shows a gasometer immediately to the north of the northern boundary of the site.

3.3 The map of 1906 indicates that by this time the building occupying the site had become Redbrook Linen Works. The gasometer is also shown just to the north of the site with sewerage filter tanks immediately to the east on the opposite side of Redbrook Road. Shortly after this time the gasometer and filter tanks had been removed.

3.4 By the 1950s, the linen works was simply labelled "works" and the housing to the west of the site had been constructed. However, by the 1970s, the building was then designated as a warehouse, and by the 1990s, the building appears to have been demolished and the site was designated as a "depot".

3.5 Due to time and cost constraints, it has not been possible to consult with local history journals and newspapers. This can be carried out if requested at additional cost, but is unlikely to provide any significant additional information.

3.6 The site is unlikely to be of archaeological interest. However, it would be prudent to make enquiries with South Yorkshire Archaeology Service.

4 GEOLOGY AND COAL MINING RISK ASSESSMENT

4.1 Geology

4.1.1 Maps of the British Geological Survey (BGS), show the site to be underlain by the Undifferentiated mudstones, siltstones, sandstones and coal of the Carboniferous Middle Coal Measures.

4.1.2 There are no drift deposits shown on the geological maps, which also show the site to be free of faulting.

4.2 Coal Mining Risk Assessment

4.2.1 The geological maps shown a series of coal seams outcropping to the west and dipping below the site. The shallowest outcrops approximately 8m to the west. However, this is a thin unnamed seam and is unlikely to have been worked.

4.2.2 The next shallowest seam is the Dunsil (Harley) Coal Seam. According to the geological memoir for Barnsley, this seam was only worked in a few places. At the nearby formed Wharncliffe Woodhouse Colliery the seam was 1.7m thick and was worked.

4.2.3 Below the Dunsil is the Gawber Coal Seam. This is reported to be only 0.3m thick where it was observed in a stream at Redbrook, but is thicker in a former shaft at Redbrook.

4.2.4 The Swallow Wood Coal lies below the Gawber and was extensively worked. At the former Darton Main Colliery it was 1.0m thick.

4.2.5 A mining report has been obtained from the Coal Authority, and is reproduced in full in Appendix 3. It states that there has been recorded mining in five seams of coal between 40m and 340m depth, with the last date of working being 1980. Under normal circumstances, ground movement should have ceased by now.

4.2.6 The report also states that "*the property is in an area where the Coal Authority believes there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development*". The Coal Authority is describing to any seams within 30m of the surface, and it is assumed it is referring to the Dunsil and Gawber Coal seams.

4.2.7 No recorded shaft or adits are reported on, or within 20m of the site boundary, although old unrecorded mine entries might be present on the site. These are considered relatively unlikely, but cannot be entirely precluded. No past, present or future opencasts are reported within the vicinity of the site.

4.2.8 In conclusion, there is the potential for mineworkings to exist below the site at a sufficiently shallow depth to affect future surface stability. A programme of rotary drilling will be necessary in order to confirm the presence or absence of such workings.

4.3 GroundSure Geo-Insight

4.3.1 A GroundSure Geo-Insight Report has been obtained for the site and is reproduced in Appendix 1. The report is based on the British Geological Survey (BGS) geological maps, GroundSure data and miscellaneous other geological sources.

4.3.2 None of the following are recorded beneath the site.

Geology 1:10,000 Scale
Artificial and Made Ground (10k) Superficial geology (10k) Landslip (10k)

Geology 1:50,000 scale
Artificial and Made Ground (50k) Artificial ground permeability (50k) Superficial geology (50k) Superficial permeability (50k) Landslip (50k) Landslip permeability (50k)

Boreholes
BGS Boreholes

Mining, Ground Workings and Natural Cavities
Natural Cavities BritPits Surface ground workings Underground workings Historical Mineral Planning Areas Mining cavities JPB mining areas Brine areas Gypsum areas Tin mining Clay mining

Railway Infrastructure and Projects
Underground railways (Non-London) Railway tunnels Historical railway and tunnel features Royal Mail tunnels Historical railways Railways HS2

In respect of natural ground subsidence, the BGS reports the following risk ratings.

Natural Ground Subsidence	Risk
Shrink-Swell Clay	Very Low
Running Sand	Negligible
Compressible Deposits	Negligible
Collapsible Deposits	Very Low
Landslide	Very Low
Ground Dissolution of Soluble Rocks	Negligible

4.3.3 A number of boreholes have been sunk in the vicinity of the site and their records could probably be obtained if necessary. However, soil variability in the area would

render them of limited use. In terms of determining the actual ground conditions on the site there is no substitute for an intrusive ground investigation.

5 HYDROGEOLOGY AND FLOODING

Hydrogeology

5.1 The Coal Measures occur throughout the heavily industrialised areas of West and South Yorkshire. They comprise a thick sequence of faulted rocks characterised by the repeated sequence of mudstone, siltstone, sandstone, seatearth and coal.

5.2 The Coal Measures, though classed as a minor aquifer, may provide good borehole yields from sandstones and many industrial supplies rely on them. However, groundwater flow is extensively affected by the faulting and fissuring of the rocks, and also by the results of coal mining and associated dewatering activities. Due to the complex, and often poorly understood hydrogeology, it is impossible to subdivide the Coal Measures into aquifers and non-aquifers except on a very detailed level and the whole sequence must therefore be considered in general terms as an aquifer.

5.3 Since April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive.

5.4 The aquifer within the bedrock deposits is designated as Secondary A. This is described as permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

5.5 Details provided by the Environment Agency in the GroundSure Enviro-Insight Report, indicate there to be no licensed surface water or groundwater abstraction points within at least 2km of the site.

Flooding

5.6 There are no open watercourses in the immediate vicinity of the site, and according to data supplied by the Environment Agency in the GroundSure Enviro-Insight report, the site is not at risk from flooding.

5.7 The Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) database provides an indication of river and coastal flood risk at a national level on a 50m grid as used by many of the insurance companies. RoFRaS data is based on a 50m grid system, with the flood rating at the centre of the grid calculated and given below. The data considers the probability that the flood defences will overtop or breach, and the distance from the river or the sea. RoFRaS data for the study site indicates the property is not at risk of flooding.

6 GROUNDSURE ENVIRO-INSIGHT REPORT

6.1 A GroundSure Enviro-Insight Report has been commissioned for this site. The following features are recorded within 250m of the centre of the site. Full details are given in Appendix 1.

6.2 Records of Licensed Discharge Consents

There is a licence to discharge sewerage during overflow storm to Redbrook at a point located 17m to the east of the site.

6.3 Radioactive Substances Authorisations

Static Solution on Zenith Park is located approximately 222m to the north. It has a licence for the disposal of radioactive waste, but is not expected to impact the study site.

6.4 Historical Landfill

The map of 1975 records a former “refuse tip” approximately 242m to the east.

6.5 Contemporary Trade Entries

The GroundSure Enviro-Insight Report lists various trade entries in the vicinity of the site. It should be noted that these lists are rarely complete.

6.6 Others

None of the following are recorded within 250m of the centre of the study site.

Waste and Landfill
Active or recent landfill
Historical landfill (BGS) records
Historical landfill (EA/NRW records)
Historical waste sites
Licensed waste sites
Waste Exemptions

Current Industrial Land Use
Electricity cables
Gas pipelines
Sites determined as Contaminated Land
Control of Major Accident Hazards (COMAH)
Regulated explosive sites
Hazardous substance storage/usage
Historical licensed industrial activities (IPC)
Licensed industrial activities (Part A(1))
Pollutant release to surface waters (Red List)
Pollutant release to public sewer
List 1 Dangerous Substances
List 2 Dangerous Substances
Pollution Incidents (EA/NRW)
Pollution inventory waste transfers
Pollution inventory radioactive waste

Hydrogeology
Superficial aquifer
Groundwater abstractions
Surface water abstractions
Potable abstractions
Source Protection Zones
Source Protection Zones (confined aquifer)

Hydrology
Surface Water features
WFD Surface water bodies

River and Coastal Flooding
Risk of flooding from Rivers and Sea (RoFRaS)
Flood Defences
Areas Benefitting from Flood Defences
Flood Storage Areas
Flood Zone 2
Flood Zone 3

Environmental Designations
Site of Special Scientific Interest (SSSI)
Conserved wetland sites (Ramsar sites)
Special Areas of Conservation (SAC)
Special Protection Areas (SPA)
National Nature Reserves (NNR)
Local Nature Reserves (LNR)
Designated Ancient Woodland
Biosphere Reserves
Forest Parks
Marine Conservation Zones
Green Belt
Proposed Ramsar sites
Possible Special Areas of Conservation (pSAC)
Potential Special Protection Areas (pSPA)
Nitrate Sensitive Areas
SSSI Units

Visual and Cultural Designations
World Heritage Sites
Areas of Outstanding Natural Beauty
National Parks
Listed Buildings
Conservation Areas
Scheduled Ancient Monuments
Registered Parks and Gardens

Agricultural Designations
Open Access Land
Tree Felling Licenses
Environmental Stewardship Schemes
Countryside Stewardship Schemes

Habitat Designations
Habitat Networks Open Mosaic Habitat Limestone Pavement Orders

6.7 The GroundSure Enviro-Insight Report is based upon known, published information and may not comprise a complete record of all features of relevance. An explanation of the datasets is provided in the report in Appendix 1.

6.8 It should be noted that due to time constraints the Local Authority has not been contacted, nor has the Petroleum Licensing Officer been contacted as former fuel tanks are not suspected.

7 CONTAMINATED LAND AND INVASIVE PLANTS

7.1 There is no visibly contaminated material on the surface of the site, nor is there any distressed vegetation suggestive of significant or serious contamination.

7.2 The inspection of the site did not indicate any obvious invasive plants. However, the identification of such is outside the expertise of this consultancy and appropriate advice should be sought.

8 RADON

8.1 According to the GroundSure Geo-Insight Report the site lies in an area where between 1% and 3% of homes are above the action level recommended by Public Health England. Radon protective measures are therefore not necessary according to the data provided in the GroundSure Report and as described in Building Research Publication BR 211.

9 GEOENVIRONMENTAL RISK ASSESSMENT

Conceptual Site Model

9.1 A quantitative health and environmental risk assessment has been carried out as part of this assessment. The process of risk assessment is set out in Part IIA of the Environment Protection Act 1990 and amended in part by The Water Act 2003. This defines contaminated land as "*any land which appears to the local authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that there is a significant possibility of significant harm being caused, or that significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused".*

9.2 The Act introduces the concept of a pollution linkage. This linkage consists of a pollution (contaminative) source or hazard and a receptor, together with an established pathway between the two. For land to be contaminated, a pollution linkage (hazard-pathway-receptor) must exist. This forms a so-called 'conceptual model' of the site.

9.3 Examples of pathways and effects from land contamination (after PPS 23) are given below, and these are illustrated on figure 3.

9.3.1 Human Health (Pathways 1-5, Receptors A – C)

Uptake of contaminants by food plants grown in contaminated soil - Uptake will depend on concentration in soil, its chemical form, soil pH, plant species and prominence in diet.

Ingestion and inhalation - Substances may be ingested directly by young children playing on contaminated soil, by eating plants which have absorbed metals or are contaminated with soil or dust. Ingestion may also occur via contaminated water supplies. Metals, some organic materials and radioactive substances may be inhaled from dusts and soils.

Skin contact - Soil containing tars, oils and corrosive substances may cause irritation to the skin through direct contact. Some substances (e.g. phenols) may be absorbed into the body through the skin or through cuts and abrasions.

Irradiation - As well as being inhaled and absorbed through the skin, radioactive materials emitting gamma rays can cause a radiation response.

Fire and explosion - Materials such as coal, coke particles, oil, tar, pitch, rubber, plastic and domestic waste are all combustible. Both underground fires and biodegradation of organic materials may produce toxic or flammable gases. Methane and other gases may explode if allowed to accumulate in confined spaces.

9.3.2 Buildings (Pathways 7 and 8)

Fire and explosion - Underground fires may cause ground subsidence and cause structural damage. Accumulations of flammable gases in confined space leads to a risk of explosion. Underground fires may damage services.

Chemical attack on building materials and services - Sulphates may attack concrete structures. Acids, oils and tarry substances may accelerate corrosion of metals or attack plastics, rubber and other polymeric materials used in pipework and service conduits or as jointing seals and protective coatings to concrete and metals.

Physical - Blast-furnace and steel-making slag (and some natural materials) may expand. Degradation of fills may cause settlement and voids in buried tanks and drums may collapse as corrosion occurs or under loading.

9.3.3 Natural Environment (Pathway 6, Receptors D - E)

Phytotoxicity (prevention/inhibition of plant growth) - Some metals essential for plant growth at low levels are phytotoxic at higher concentrations. Methane and other gases may give rise to phytotoxic effects.

Contamination of water resources - Soil has a limited capacity to absorb, degrade or attenuate the effects of pollutants. When this is exceeded, polluting substances may enter into surface and groundwaters.

Ecotoxological effects - Contaminants in soil may affect microbial, animal and plant populations. Ecosystems or individual species on the site, in surface waters or areas affected by migration from the site may be affected.

9.4 For any contaminant source identified, judgement is used regarding the probability of a pollution linkage occurring and the potential consequences of that linkage. Based on the probability and likely consequences, the overall risk (significance) can be established. The definitions that have been used for this purpose are given in Standard Appendix B. The probability of a hazard, combined with its consequences, can be used to assess risk. This forms the so-called Conceptual Site Model.

Sources

9.5 The site has previously been used as a bleach works, linen works, warehouse and depot.

9.6 In respect of the site's use as a bleach works and linen works, ground contamination may result from the accidental spillage of chemicals in storage areas or during the various stages of bleaching and manufacturing yarn and textiles.

9.7 Off-loading areas, storage tanks and drum storage areas, pipework and surface water soakaways should all be considered likely areas of contamination. Older or upgraded works may have redundant underground tanks or pipelines containing chemical residues or wastes.

9.8 Effluents from bleaching and washing fibres, yarn or fabric are normally discharged to the foul sewer but may be lost to the surrounding ground if the sewer leaks.

There is the possibility that effluent may have contained pesticides such as lindane (g-hexachlorocyclohexane) and pentachlorophenol (PCP), particularly where imported fibres or fabrics have been used.

9.9 Finished or partly finished fabrics are a possible fire risk and, if there has been a fire, firefighting water may have spread contaminants over a wide area.

9.10 Many industries, including the textile industry, have in the past used solid waste to make up ground levels on site. Solid wastes may have been disposed of in on-site landfills.

9.11 Where asbestos has been used in buildings or pipework, decommissioning or demolition may result in local contamination. Asbestos pipework and boiler ash (containing heavy metals and sulphates) may have been disposed of in on-site landfills. Any organic infill has the potential to generate landfill gases, principally methane and carbon dioxide.

9.12 Contamination may also occur from PCBs where transformers or capacitors containing these have been refilled or decommissioned.

9.13 The fate of organic compounds, particularly solvents which have been lost to the ground, will depend on their solubility and volatility and on physical, chemical and biological factors. Volatile organic solvents will readily partition from the liquid phase to the vapour phase resulting in high concentrations in the soil pore space above the unsaturated zone. Close to the soil surface, some will be lost directly to the atmosphere by evaporation. Under favourable ground conditions, less volatile solvents of low aqueous solubility will tend to migrate to the water table, where

those of a lower density than water will form layers on the water table surface. Compounds which are denser than water, for example chlorinated solvents, generally accumulate at the base of the water body. Although small quantities of the solvents will be dissolved and thus migrate in a manner consistent with general groundwater flow, the bodies of the free phase solvents may not.

9.14 The higher the natural organic matter and clay content of the soil, the greater the degree of adsorption of the organic contaminants and the greater the reduction of contaminant migration. Thus, the greater degree of mobility will occur in coarse-grained sands and gravels with little organic matter. The less soluble and therefore less mobile compounds which become adsorbed on to clay or organic matter may cause water pollution long after the original source has been removed, by continuing to desorb into the soil-water.

9.15 The more soluble organic compounds including the alcohols, for example methanol, will dissolve in water and readily migrate through the soil system, eventually reaching the ground water.

9.16 Widespread contamination by solvents may enhance the mobility of some organic compounds which, though of low aqueous solubility, may dissolve readily in organic solvents, for example adhesives, halogenated oils, flame retardants and some resins. The potential for groundwater contamination by organic compounds of low aqueous solubility may therefore be increased.

9.17 Organic compounds such as resins and solvents may present flammability risks and are potentially biodegradable, producing methane and carbon dioxide gases.

9.18 Biodegradation processes in soils can be influenced by a number of factors, namely moisture content, oxygen concentration and pH, acting separately or in combination. For example, low moisture content reduces microbiological activity, while high moisture content can reduce oxygen penetration and possibly lead to anaerobic soil conditions. Such conditions enhance the biodegradation of some materials, for example chlorinated compounds, while aerobic conditions are needed to biodegrade many oils. Low pHs tend to reduce the bacterial population and encourage fungal activity; at pHs lower than 5 microbiological activity is much reduced. The presence of heavy metals also inhibits micro-organisms. As a result of these factors, at high concentrations in soil, even relatively non-persistent compounds may not biodegrade readily.

9.19 Partial degradation can produce intermediate breakdown products which are more mobile than the parent compound. Even potentially biodegradable compounds such as toluene, acetone and oil-related hydrocarbons may persist due to unfavourable conditions.

9.20 As with organic compounds, the transport of metals through the soil is significantly influenced by the presence of clay minerals and organic matter. The solubility of some metals (for example copper, zinc and lead) may increase under acidic conditions. In other cases, the relationship is more complex, for example trivalent chromium is soluble under both acidic and alkaline conditions. Certain heavy metals may be taken up by plants and animals, thereby entering the food chain.

9.21 A variety of inorganic compounds are used by the textile industry, particularly mineral acids, alkalis, bleaching agents and metal salts. The most significant effects resulting of the loss to ground of these compounds are acidic or alkaline ground

conditions; raised chloride concentrations can result from some bleaching agents and metal chlorides. As most, if not all, of the compounds used are in an aqueous form, it can be assumed that, following loss to ground, they will readily migrate in groundwater and, depending on the attenuation properties of the underlying ground may reach the underlying water table.

9.22 The use of the site as a depot has the potential for the spillages of fuels, oils, lubricants etc depending upon the extent that vehicles used the site. Electricity sub-stations can have the potential to leak Polychlorinated Biphenyls (PCB), which is used as a coolant. However this is most commonly associated with redundant substations or those being decommissioned.

Reference has been made to DEFRA publication CLR8 'Potential Contaminants for the Assessment of Land' and the relevant DOE Industry Profiles to identify the typical contaminants associated with the past industrial use.

Risk Assessment based on Conceptual Site Model

Summary of Hazards, Pathways and Receptors

Source	Potential Pollutant	Pathways	Receptor	Risk
On-site Bleach Works and Linen Works.	See 9.7-9.22 for the full list.	1 - 5	A. Present Occupants.	**Low Risk.**
			B. Groundworkers.	**Moderate Risk**
On-site depot and warehouse	Oils, fuels, grease, hydraulic fluid, metals, asbestos.		C. Future Occupants.	**Moderate Risk**
		6	D. Controlled Waters.	**Low to Moderate Risk**
Electricity Substation just to NE corner of the site	PCB		E. Ecosystems.	**Low to Moderate Risk**
		7	F. Building Materials and Services.	**Low to Moderate Risk**
Organic Material.	Landfill Gases, Radon, VOCs, SVOCs.	8	A - F	**Low to Moderate Risk**

Pathways and Receptors

9.23 The principal receptors are groundworkers, future residents and controlled water (Receptors B, C and D). The main risk on this site is from the use of the site as a bleach works, linen worjs and later as a depot. Based on the past history of the site, the probability of contamination being present sufficient to affect the identified receptors is considered to be a *moderate risk.*

9.24 The overall risk is assessed to be *moderate.* At this stage it is not considered that there is likely to be any immediate significant risk, but a full intrusive investigation in respect of contamination is considered to be necessary.

9.25 With any site, the possibility of contaminants being present, sufficient to cause significant harm cannot be entirely precluded without intrusive investigation, sampling and testing since it is not always possible to determine if contaminants have been tipped on the site, or have seeped into the ground, or have migrated below the ground onto the site from adjacent pieces of land.

9.26 Contamination testing is recommended in order to reduce the risk of any unforeseen contamination being uncovered during construction or vapours being released from solvents in the sub-soils. Any investigation should be carried out in accordance with BS10175 “Investigation of Potentially Contaminated Sites”.

A D Joyce

BSc MSc ARSM CEng CGeol CEnv MICE FGS SiLC SQP

May 2021

This report is subject to the provisions of the Copyright Acts and is for the sole benefit of Cadam Construction Limited in respect of a preliminary assessment of geoenvironmental and geotechnical conditions on the site. The report cannot be assigned to, or relied on, by any other party without prior permission.

Procedure Notes

The desk study and/or ground investigation have been carried out using reasonable skill and care in accordance with the principles of Ground Investigation and Testing", BS5930: 2013 and BS10175:2011+A1:2013, and the terms of the client's brief. The report has been prepared for the specific purposes notified at the time of the initial enquiry.

By its very nature any ground investigation only encounters and samples a small percentage of the ground. Consequently changes in ground conditions and soil properties can occur between any two exploratory points, for example local features such as soft ground, pockets of contamination and faults. This is also true of the exploration of mineworkings and such features can extend beneath parts of the site not investigated. Unrecorded bell pits and shafts can also exist between exploratory points. The ground investigation is designed to minimize such risks. Conclusions and recommendations are based on the information presented in this report, but unforeseen features may exist. No liability can be accepted for conditions not revealed by the exploratory holes. Therefore, actual ground conditions shall be noted during construction and further advice sought if they differ from those predicted. Michael D. Joyce LLP reserves the right to amend the conclusions and recommendations in the light of further information. Actual methods of construction or alternative designs shall be notified to Michael D. Joyce Associates LLP, such that the recommendations made can be reconsidered in the light of any changes.

Further investigation can be carried out to further reduce uncertainty and risk but ultimately these risks cannot be eliminated. Similarly a desk study normally only considers readily available information and further information could be held by other sources. In commissioning further research or investigation the cost/benefit of doing so must be considered.

It is assumed that groundlevels shall not change significantly from those at present. The groundwater conditions are based on observations made at the time of the investigation, unless stated otherwise. It shall be noted that the observations are subject to the method of the boring or excavation and that groundwater levels shall vary due to seasonal or other effects.

Where buildings are present on a site, structural and asbestos surveys have not been carried out, unless specifically stated. An Unexploded Ordnance Survey has not been carried out unless specifically stated. In relevant situations it would be prudent to commission such surveys.

Where information has been obtained from Third Parties, no liability can be accepted for the accuracy or completeness of this information. Where anecdotal evidence or speculations are presented, they must be treated as such and cannot be relied upon.



Redbrook Road, Barnsley

Site Location

Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Reproduced from the Ordnance Survey Map with the permission of the controller of Her Majesty's Stationery Office. Crown copyright reserved. Licence No. AL 100004970

Scale: NTS

Figure: 1



Redbrook Road, Barnsley

Site Plan and Development Proposals

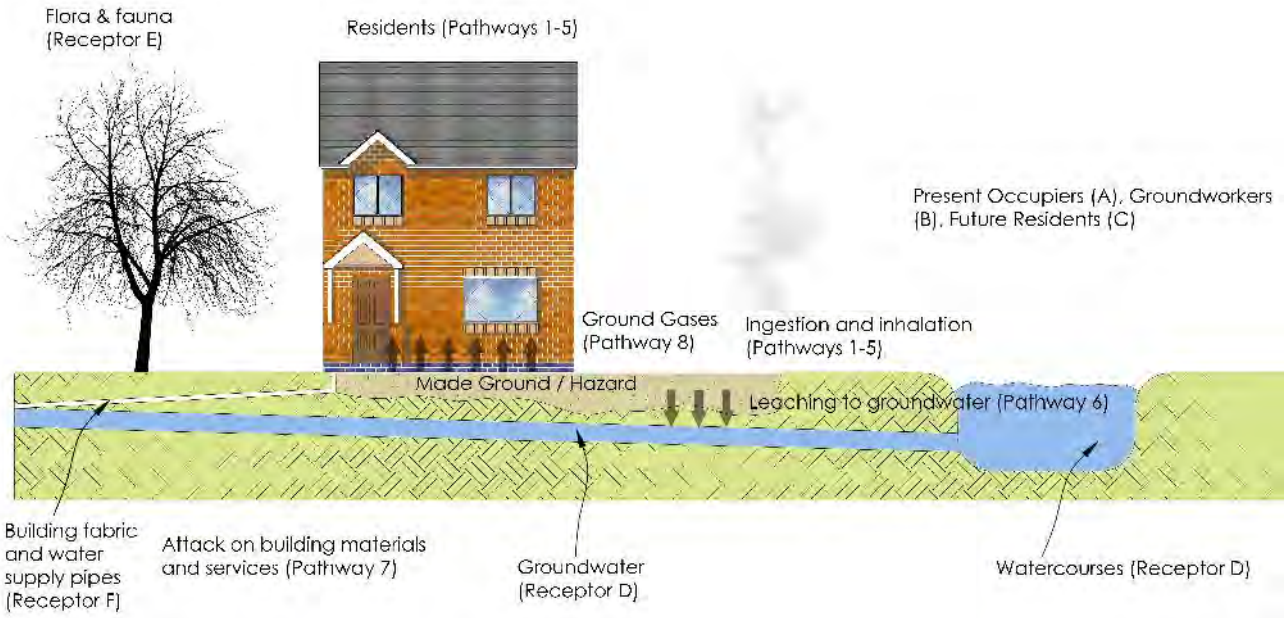
Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Reproduced from the Ordnance Survey Map with the permission of the controller of Her Majesty's Stationery Office. Crown copyright reserved. Licence No. AL 100004970

Scale: NTS

Figure: 2



Pathways

1. Ingestion of contaminated soil/dust
2. Ingestion of contaminated food
3. Ingestion of contaminated water
4. Inhalation of contaminated vapours
5. Dermal contact with contaminated soil/dust or water
6. Pollution of controlled water and off site migration
7. Attack on building materials and services
8. Migration of landfill gases and radon

Receptors

A. Present site occupiers
B. Site development personnel
C. Future residents
D. Controlled waters
E. Flora and fauna
F. Building and services

Schematic Representation of Conceptual Site Model

Schematic Representation of Conceptual Site Model

Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Figure: 3

Appendix 1

GroundSure Enviro-Insight and Geo-Insight Reports

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

432113, 407708

Order Details

Date: 11/05/2021

Your ref: Redbrook_Road_-_Barnsley

Our Ref: HMD-354-7845435

Client: Michael D Joyce Associates LLP

Site Details

Location: 432134 407715

Area: 0.18 ha

Authority: Barnsley Metropolitan Borough Council



Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	6	11	10	45	-
17	1.2	Historical tanks	2	1	1	1	-
18	1.3	Historical energy features	1	2	1	1	-
18	1.4	Historical petrol stations	0	0	0	0	-
19	1.5	Historical garages	0	0	5	16	-
20	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
21	2.1	Historical industrial land uses	7	14	12	58	-
25	2.2	Historical tanks	2	2	2	1	-
25	2.3	Historical energy features	1	4	1	3	-
26	2.4	Historical petrol stations	0	0	0	0	-
26	2.5	Historical garages	0	0	9	30	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	Active or recent landfill	0	0	0	0	-
29	3.2	Historical landfill (BGS records)	0	0	0	1	-
30	3.3	Historical landfill (LA/mapping records)	0	0	1	0	-
30	3.4	Historical landfill (EA/NRW records)	0	1	3	3	-
32	3.5	Historical waste sites	0	0	0	2	-
32	3.6	Licensed waste sites	0	0	0	0	-
32	3.7	Waste exemptions	0	0	0	9	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
34	4.1	Recent industrial land uses	0	1	9	-	-
35	4.2	Current or recent petrol stations	0	0	1	1	-
35	4.3	Electricity cables	0	0	0	0	-
36	4.4	Gas pipelines	0	0	0	0	-
36	4.5	Sites determined as Contaminated Land	0	0	0	0	-

36	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
36	4.7	Regulated explosive sites	0	0	0	0	-
36	4.8	Hazardous substance storage/usage	0	0	0	0	-
37	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
37	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
37	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	0	7	-
38	**4.12**	**Radioactive Substance Authorisations**	0	0	1	0	-
38	**4.13**	**Licensed Discharges to controlled waters**	0	1	0	0	-
39	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
39	4.15	Pollutant release to public sewer	0	0	0	0	-
39	4.16	List 1 Dangerous Substances	0	0	0	0	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
40	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
40	4.19	Pollution inventory substances	0	0	0	0	-
40	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
41	5.1	Superficial aquifer	None (within 500m)				
42	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
43	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
44	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
44	5.5	Groundwater vulnerability- local information	None (within 0m)				
45	5.6	Groundwater abstractions	0	0	0	0	0
45	5.7	Surface water abstractions	0	0	0	0	0
45	5.8	Potable abstractions	0	0	0	0	0
45	5.9	Source Protection Zones	0	0	0	0	-
46	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
47	**6.1**	**Water Network (OS MasterMap)**	0	0	6	-	-

48	**6.2**	**Surface water features**	0	0	2	-	-
48	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
49	**6.4**	**WFD Surface water bodies**	0	0	0	-	-
49	**6.5**	**WFD Groundwater bodies**	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
50	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
51	**7.2**	**Historical Flood Events**	0	0	1	-	-
51	7.3	Flood Defences	0	0	0	-	-
51	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
51	7.5	Flood Storage Areas	0	0	0	-	-
52	7.6	Flood Zone 2	None (within 50m)				
52	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
53	**8.1**	**Surface water flooding**	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
55	**9.1**	**Groundwater flooding**	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
56	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
57	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
57	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
57	10.4	Special Protection Areas (SPA)	0	0	0	0	0
57	10.5	National Nature Reserves (NNR)	0	0	0	0	0
58	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
58	**10.7**	**Designated Ancient Woodland**	0	0	0	0	7
58	10.8	Biosphere Reserves	0	0	0	0	0
59	10.9	Forest Parks	0	0	0	0	0
59	10.10	Marine Conservation Zones	0	0	0	0	0
59	**10.11**	**Green Belt**	0	0	0	0	2
59	10.12	Proposed Ramsar sites	0	0	0	0	0

60	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
60	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
60	10.15	Nitrate Sensitive Areas	0	0	0	0	0
60	**10.16**	**Nitrate Vulnerable Zones**	1	0	0	0	2
62	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
63	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
64	11.1	World Heritage Sites	0	0	0	-	-
64	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
64	11.3	National Parks	0	0	0	-	-
64	11.4	Listed Buildings	0	0	0	-	-
65	11.5	Conservation Areas	0	0	0	-	-
65	11.6	Scheduled Ancient Monuments	0	0	0	-	-
65	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
66	**12.1**	**Agricultural Land Classification**	Grade 3 (within 250m)				
67	12.2	Open Access Land	0	0	0	-	-
67	12.3	Tree Felling Licences	0	0	0	-	-
67	12.4	Environmental Stewardship Schemes	0	0	0	-	-
67	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
68	**13.1**	**Priority Habitat Inventory**	0	0	3	-	-
69	13.2	Habitat Networks	0	0	0	-	-
69	13.3	Open Mosaic Habitat	0	0	0	-	-
69	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
70	**14.1**	**10k Availability**	Identified (within 500m)				
71	**14.2**	**Artificial and made ground (10k)**	0	1	3	3	-
73	14.3	Superficial geology (10k)	0	0	0	0	-

73	14.4	Landslip (10k)	0	0	0	0	-
74	14.5	Bedrock geology (10k)	1	0	3	1	-
75	14.6	Bedrock faults and other linear features (10k)	0	2	9	20	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
77	15.1	50k Availability	Identified (within 500m)				
78	15.2	Artificial and made ground (50k)	0	0	3	3	-
79	15.3	Artificial ground permeability (50k)	0	0	-	-	-
80	15.4	Superficial geology (50k)	0	0	0	0	-
80	15.5	Superficial permeability (50k)	None (within 50m)				
80	15.6	Landslip (50k)	0	0	0	0	-
80	15.7	Landslip permeability (50k)	None (within 50m)				
81	15.8	Bedrock geology (50k)	1	0	3	1	-
82	15.9	Bedrock permeability (50k)	Identified (within 50m)				
82	15.10	Bedrock faults and other linear features (50k)	0	2	4	15	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
84	16.1	BGS Boreholes	0	1	13	-	-
Page	Section	Natural ground subsidence					
86	17.1	Shrink swell clays	Very low (within 50m)				
87	17.2	Running sands	Negligible (within 50m)				
88	17.3	Compressible deposits	Negligible (within 50m)				
89	17.4	Collapsible deposits	Very low (within 50m)				
90	17.5	Landslides	Low (within 50m)				
92	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
94	18.1	Natural cavities	0	0	0	0	-
95	18.2	BritPits	0	0	1	2	-
95	18.3	Surface ground workings	0	9	16	-	-
97	18.4	Underground workings	0	0	0	0	12
97	18.5	Historical Mineral Planning Areas	0	0	0	0	-

98	**18.6**	**Non-coal mining**	1	0	0	0	0
98	18.7	Mining cavities	0	0	0	0	0
98	18.8	JPB mining areas	None (within 0m)				
98	**18.9**	**Coal mining**	Identified (within 0m)				
99	18.10	Brine areas	None (within 0m)				
99	18.11	Gypsum areas	None (within 0m)				
99	18.12	Tin mining	None (within 0m)				
99	18.13	Clay mining	None (within 0m)				

Page	Section	Radon
100	**19.1**	**Radon**	Between 1% and 3% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
101	**20.1**	**BGS Estimated Background Soil Chemistry**	1	0	-	-	-
101	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
101	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
102	21.1	Underground railways (London)	0	0	0	-	-
102	21.2	Underground railways (Non-London)	0	0	0	-	-
103	21.3	Railway tunnels	0	0	0	-	-
103	**21.4**	**Historical railway and tunnel features**	0	4	4	-	-
103	21.5	Royal Mail tunnels	0	0	0	-	-
104	21.6	Historical railways	0	0	0	-	-
104	21.7	Railways	0	0	0	-	-
104	21.8	Crossrail 1	0	0	0	0	-
104	21.9	Crossrail 2	0	0	0	0	-
104	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 29/06/2018

Site Area: 0.18ha

Recent site history - 2013 aerial photograph



Capture Date: 07/06/2013

Site Area: 0.18ha

Recent site history - 2012 aerial photograph



Capture Date: 26/03/2012

Site Area: 0.18ha

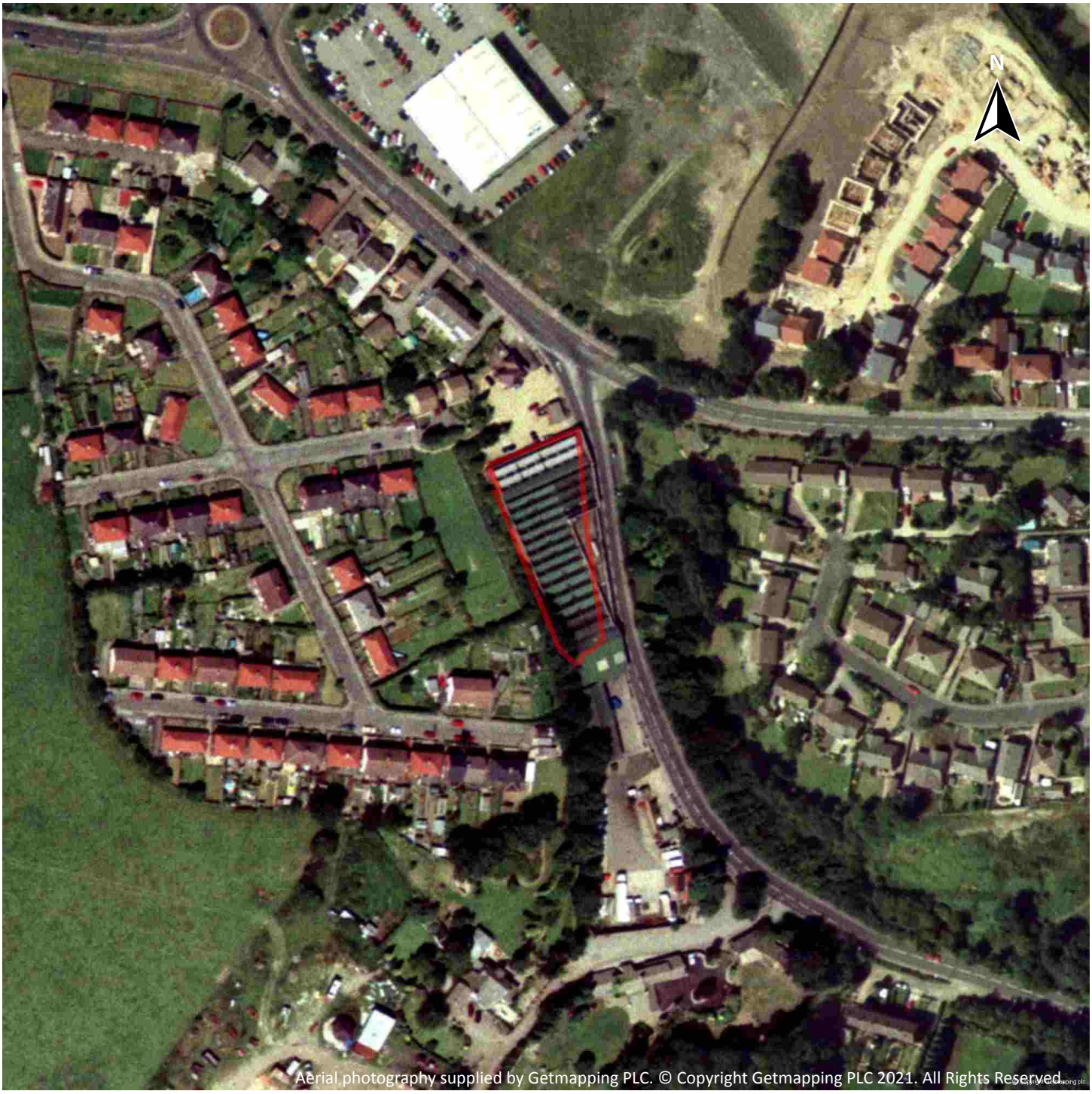
Recent site history - 2009 aerial photograph



Capture Date: 11/09/2009

Site Area: 0.18ha

Recent site history - 1999 aerial photograph



Capture Date: 10/07/1999

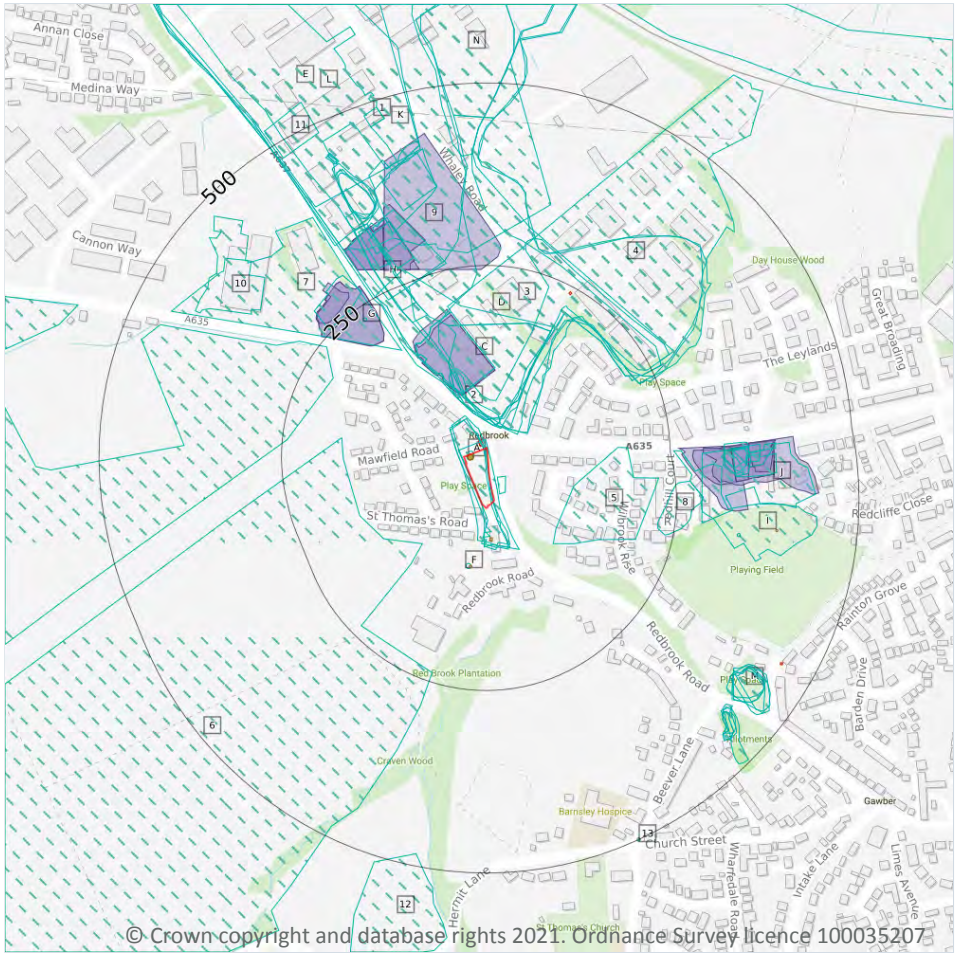
Site Area: 0.18ha

OS MasterMap site plan



Site Area: 0.18ha

1 Past land use



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

1.1 Historical industrial land uses

Records within 500m	72

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Gasometer**	**1904**	**1420841**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Bleach Works**	**1891**	**1422788**
A	**On site**	**Unspecified Tank**	**1891**	**1433412**
A	**On site**	**Unspecified Works**	**1973**	**1438954**
A	**On site**	**Linen Works**	**1904 - 1929**	**1470956**
A	**On site**	**Linen Works**	**1948**	**1518666**
A	9m E	Filter Tanks	1904	1435401
1	32m N	Railway Sidings	1948 - 1951	1466580
B	32m N	Coke and By-Product Works	1948	1552032
2	32m N	Refuse Heap	1948	1523639
3	33m NE	Refuse Heap	1966	1538520
C	33m NE	Railway Sidings	1966	1502956
D	34m NE	Unspecified Disused Tip	1973 - 1982	1536474
4	38m NE	Unspecified Disused Workings	1993	1455949
C	39m N	Refuse Heap	1929	1557782
E	39m N	Railway Sidings	1929	1520156
D	41m N	Refuse Heap	1951	1485921
F	80m S	Unspecified Tank	1929	1433413
C	82m N	Garage	1993	1457796
5	93m SE	Linen Works	1951	1424353
6	98m SW	Opencast Workings	1966	1542560
7	169m NW	Unspecified Works	1973 - 1982	1504396
H	197m N	Cuttings	1929	1478886
H	218m NW	Cuttings	1948 - 1951	1536522
8	226m E	Sandstone Quarry	1850	1451625
G	230m NW	Unspecified Pump	1850	1456721
H	239m NW	Unspecified Works	1982	1540083
G	254m NW	Garage	1993	1457793
I	254m E	Bleach Works	1850	1422789

ID	Location	Land use	Dates present	Group ID
K	269m N	Unspecified Works	1951	1470830
H	273m N	Unspecified Works	1973	1521768
H	284m NW	Cuttings	1966	1489731
J	285m E	Colliery	1938	1492320
H	300m N	Garage	1993	1457794
J	317m E	Unspecified Ground Workings	1973	1414404
J	317m E	Refuse Heap	1948	1517264
J	320m E	Refuse Heap	1938	1550914
B	320m N	Chemical Works	1948 - 1951	1541259
J	321m E	Refuse Heap	1951	1514351
J	332m E	Garage	1973 - 1982	1523339
J	333m E	Garage	1993	1480315
I	337m E	Unspecified Pump	1850	1456722
L	339m NW	Coke and By-Product Works	1929	1463362
10	344m NW	Unspecified Works	1993	1511822
B	344m N	Chemical Works	1929	1478844
E	348m NW	Refuse Heap	1966	1465992
J	350m E	Garage	1966	1467501
E	352m N	Refuse Heap	1948	1523177
E	353m N	Refuse Heap	1929	1459431
E	356m N	Refuse Heap	1951	1536576
L	398m NW	Railway Sidings	1966	1532555
M	400m SE	Unspecified Pit	1951	1492757
N	401m N	Refuse Heap	1948 - 1951	1461010
M	402m SE	Unspecified Pit	1938	1460862
M	403m SE	Unspecified Pit	1904	1546236
M	403m SE	Sandstone Quarry	1850	1451624
M	404m SE	Unspecified Pit	1948	1477692

ID	Location	Land use	Dates present	Group ID
B	406m N	Refuse Heap	1929	1438002
M	406m SE	Unspecified Pit	1890	1505312
M	423m SE	Unspecified Heap	1951	1417633
M	423m SE	Unspecified Ground Workings	1966 - 1993	1472270
M	425m SE	Unspecified Ground Workings	1938	1550796
M	426m SE	Unspecified Ground Workings	1904	1482182
M	426m SE	Unspecified Ground Workings	1948	1492298
E	438m NW	Unspecified Tanks	1929	1520064
E	438m NW	Unspecified Tanks	1948	1465942
E	441m NW	Unspecified Tanks	1951	1498755
N	452m N	Unspecified Disused Tip	1973	1551997
K	468m N	Unspecified Tanks	1929	1425811
11	478m NW	Unspecified Works	1973	1493423
12	483m S	Opencast Workings	1966	1423437
13	498m SE	Unspecified Pump	1850	1456725

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**5**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Unspecified Tank**	**1893**	**228907**
A	**On site**	**Gasometer**	**1906**	**229688**
F	41m S	Unspecified Tank	1975 - 1990	234155

ID	Location	Land use	Dates present	Group ID
F	81m S	Unspecified Tank	1893 - 1906	248801
I	388m E	Unspecified Tank	1893	228911

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**5**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Gasometer**	**1906**	**131545**
A	5m N	Electricity Substation	1975 - 1999	137428
A	7m N	Electricity Substation	1990	144286
D	239m NE	Electricity Substation	1999	131081
M	451m SE	Electricity Substation	1989 - 1991	138767

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	21

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
C	79m N	Garage	1990 - 1991	44542
C	79m N	Garage	1999	43226
G	193m NW	Garage	1980	42037
G	193m NW	Garage	1980 - 1991	46157
9	245m N	Garage	1986 - 1991	44459
G	261m NW	Garage	1969 - 1976	45840
H	262m N	Garage	1998	42943
J	262m E	Garage	1991	44011
H	265m N	Motor Repair Works	-	41063
J	278m E	Garage	1999	44940
H	279m NW	Garage	1996 - 1998	44305
H	279m NW	Garage	1990 - 1993	45736
H	279m NW	Motor Repair Works	1970	41589
H	279m NW	Garage	1987 - 1989	45711
J	294m E	Garage	1959	45472
J	318m E	Garage	1975	44169
J	331m E	Garage	1990 - 1995	46520
J	332m E	Garage	1999	43513
J	350m E	Garage	1996	44941
J	352m E	Garage	1959	44304
J	353m E	Garage	1984 - 1989	45301

This data is sourced from Ordnance Survey / Groundsure.

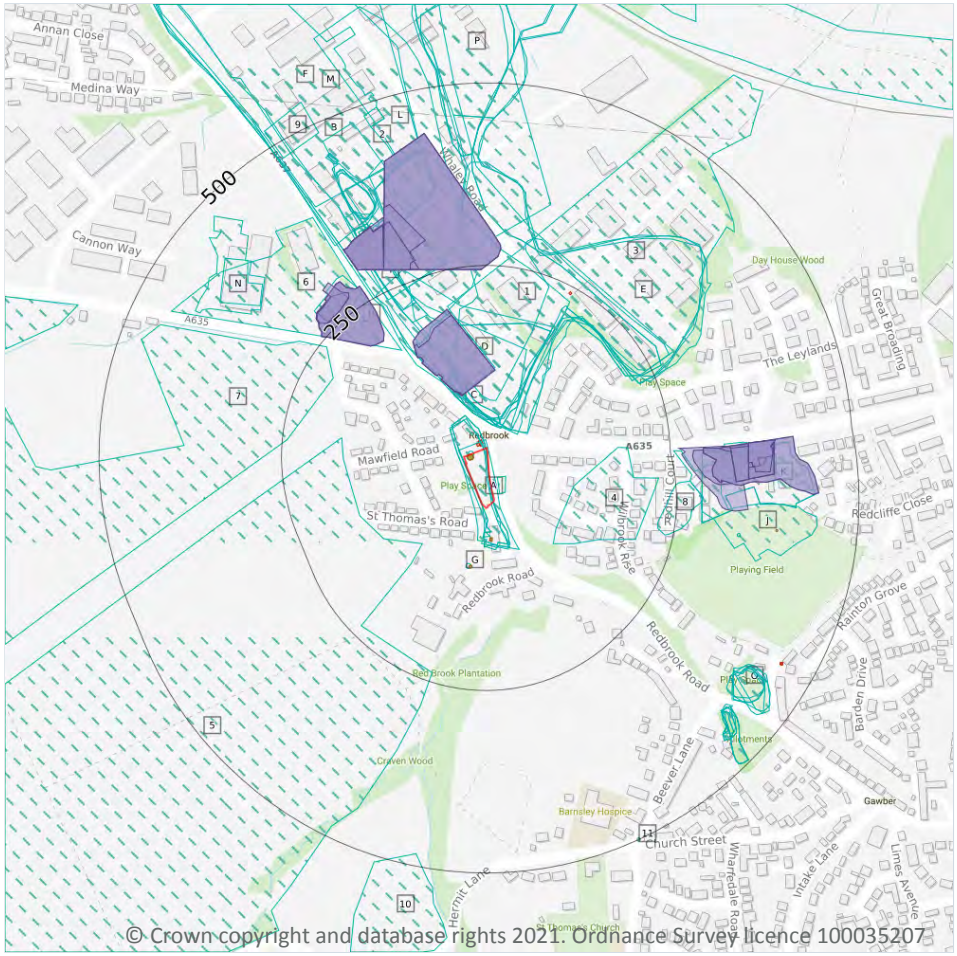
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

2.1 Historical industrial land uses

Records within 500m	91

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Unspecified Works**	**1973**	**1438954**
A	**On site**	**Linen Works**	**1929**	**1470956**
A	**On site**	**Linen Works**	**1904**	**1470956**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Gasometer**	**1904**	**1420841**
A	**On site**	**Bleach Works**	**1891**	**1422788**
A	**On site**	**Unspecified Tank**	**1891**	**1433412**
A	**On site**	**Linen Works**	**1948**	**1518666**
A	9m E	Filter Tanks	1904	1435401
B	32m N	Railway Sidings	1948	1466580
B	32m N	Coke and By-Product Works	1948	1552032
C	32m N	Refuse Heap	1948	1523639
C	32m N	Refuse Heap	1948	1523639
1	33m NE	Refuse Heap	1966	1538520
D	33m NE	Railway Sidings	1966	1502956
E	34m NE	Unspecified Disused Tip	1973	1536474
2	37m NE	Railway Sidings	1951	1466580
3	38m NE	Unspecified Disused Workings	1993	1455949
E	38m NE	Unspecified Disused Tip	1982	1536474
D	39m N	Refuse Heap	1929	1557782
F	39m N	Railway Sidings	1929	1520156
E	41m N	Refuse Heap	1951	1485921
G	80m S	Unspecified Tank	1929	1433413
D	82m N	Garage	1993	1457796
4	93m SE	Linen Works	1951	1424353
5	98m SW	Opencast Workings	1966	1542560
6	169m NW	Unspecified Works	1973	1504396
I	197m N	Cuttings	1929	1478886
7	209m NW	Opencast Workings	1966	1542560
I	218m NW	Cuttings	1948	1536522
I	218m N	Cuttings	1951	1536522
8	226m E	Sandstone Quarry	1850	1451625

ID	Location	Land Use	Date	Group ID
H	230m NW	Unspecified Pump	1850	1456721
I	239m NW	Unspecified Works	1982	1540083
H	254m NW	Garage	1993	1457793
J	254m E	Bleach Works	1850	1422789
L	269m N	Unspecified Works	1951	1470830
I	273m N	Unspecified Works	1973	1521768
I	284m NW	Cuttings	1966	1489731
K	285m E	Colliery	1938	1492320
K	285m E	Colliery	1938	1492320
I	300m N	Garage	1993	1457794
K	317m E	Unspecified Ground Workings	1973	1414404
K	317m E	Refuse Heap	1948	1517264
K	320m E	Refuse Heap	1938	1550914
K	320m E	Refuse Heap	1938	1550914
B	320m N	Chemical Works	1948	1541259
K	321m E	Refuse Heap	1951	1514351
B	324m N	Chemical Works	1951	1541259
K	332m E	Garage	1973	1523339
K	332m E	Garage	1982	1523339
K	333m E	Garage	1993	1480315
J	337m E	Unspecified Pump	1850	1456722
M	339m NW	Coke and By-Product Works	1929	1463362
N	344m NW	Unspecified Works	1993	1511822
B	344m N	Chemical Works	1929	1478844
N	348m NW	Unspecified Works	1982	1504396
F	348m NW	Refuse Heap	1966	1465992
K	350m E	Garage	1966	1467501
F	352m N	Refuse Heap	1948	1523177

ID	Location	Land Use	Date	Group ID
F	352m N	Refuse Heap	1948	1523177
F	353m N	Refuse Heap	1929	1459431
F	356m N	Refuse Heap	1951	1536576
M	398m NW	Railway Sidings	1966	1532555
O	400m SE	Unspecified Pit	1951	1492757
P	401m N	Refuse Heap	1948	1461010
P	401m N	Refuse Heap	1948	1461010
O	402m SE	Unspecified Pit	1938	1460862
O	402m SE	Unspecified Pit	1938	1460862
P	402m N	Refuse Heap	1951	1461010
O	403m SE	Unspecified Pit	1904	1546236
O	403m SE	Sandstone Quarry	1850	1451624
O	404m SE	Unspecified Pit	1948	1477692
B	406m N	Refuse Heap	1929	1438002
O	406m SE	Unspecified Pit	1890	1505312
O	423m SE	Unspecified Heap	1951	1417633
O	423m SE	Unspecified Ground Workings	1993	1472270
O	423m SE	Unspecified Ground Workings	1973	1472270
O	423m SE	Unspecified Ground Workings	1966	1472270
O	423m SE	Unspecified Ground Workings	1982	1472270
O	425m SE	Unspecified Ground Workings	1938	1550796
O	425m SE	Unspecified Ground Workings	1938	1550796
O	426m SE	Unspecified Ground Workings	1948	1492298
O	426m SE	Unspecified Ground Workings	1904	1482182
F	438m NW	Unspecified Tanks	1929	1520064
F	438m NW	Unspecified Tanks	1948	1465942
F	441m NW	Unspecified Tanks	1951	1498755
P	452m N	Unspecified Disused Tip	1973	1551997

ID	Location	Land Use	Date	Group ID
L	468m N	Unspecified Tanks	1929	1425811
9	478m NW	Unspecified Works	1973	1493423
10	483m S	Opencast Workings	1966	1423437
11	498m SE	Unspecified Pump	1850	1456725

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**7**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Unspecified Tank**	**1893**	**228907**
A	**On site**	**Gasometer**	**1906**	**229688**
G	41m S	Unspecified Tank	1990	234155
G	41m S	Unspecified Tank	1975	234155
G	81m S	Unspecified Tank	1893	248801
G	81m S	Unspecified Tank	1906	248801
J	388m E	Unspecified Tank	1893	228911

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**9**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Gasometer**	**1906**	**131545**
A	5m N	Electricity Substation	1999	137428
A	6m N	Electricity Substation	1991	137428
A	6m N	Electricity Substation	1975	137428
A	7m N	Electricity Substation	1990	144286
E	239m NE	Electricity Substation	1999	131081
O	451m SE	Electricity Substation	1989	138767
O	451m SE	Electricity Substation	1989	138767
O	451m SE	Electricity Substation	1991	138767

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**39**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 21**

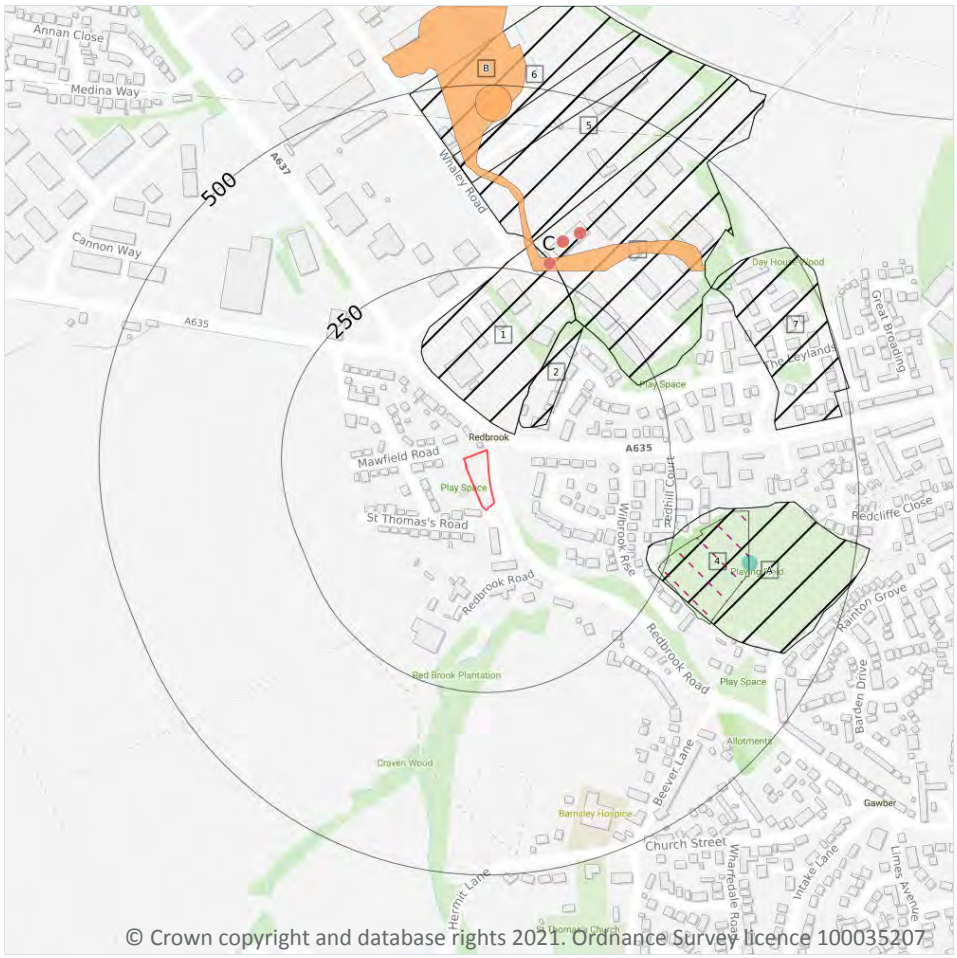
ID	Location	Land Use	Date	Group ID
D	79m N	Garage	1990	44542
D	79m N	Garage	1991	44542
D	79m N	Garage	1999	43226
H	193m NW	Garage	1980	46157

ID	Location	Land Use	Date	Group ID
H	193m NW	Garage	1991	46157
H	193m NW	Garage	1980	42037
B	245m N	Garage	1986	44459
B	245m N	Garage	1991	44459
B	245m N	Garage	1987	44459
H	261m NW	Garage	1969	45840
H	261m NW	Garage	1976	45840
I	262m N	Garage	1998	42943
K	262m E	Garage	1991	44011
I	265m N	Motor Repair Works	-	41063
K	278m E	Garage	1999	44940
I	279m NW	Garage	1998	44305
I	279m NW	Garage	1993	45736
I	279m NW	Garage	1993	45736
I	279m NW	Garage	1996	44305
I	279m NW	Motor Repair Works	1970	41589
I	279m NW	Garage	1987	45711
I	279m NW	Garage	1989	45711
I	279m NW	Garage	1990	45736
I	279m NW	Garage	1991	45736
K	294m E	Garage	1959	45472
K	294m E	Garage	1959	45472
K	318m E	Garage	1975	44169
K	331m E	Garage	1990	46520
K	331m E	Garage	1991	46520
K	332m E	Garage	1999	43513
K	350m E	Garage	1995	46520
K	350m E	Garage	1996	44941

ID	Location	Land Use	Date	Group ID
K	350m E	Garage	1990	46520
K	352m E	Garage	1959	44304
K	353m E	Garage	1986	45301
K	353m E	Garage	1987	45301
K	353m E	Garage	1989	45301
K	353m E	Garage	1989	45301
K	353m E	Garage	1984	45301

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical landfill (BGS)

Historical landfill (LA/OS)

Historical waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	1

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Address	BGS Number	Risk	Waste Type
A	359m E	Gawber Refuse Tip, Withorpe Ln, Gawber, Barnsley	1400	No risk to aquifer	N/A

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	**1**

Landfill sites identified from Local Authority records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Site address	Source	Data type
4	242m E	Refuse Tip	1975 mapping	Polygon

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	**7**

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Details		
1	35m NE	Site Address: South Yorkshire Industrial Estate, Redbrook, Barnsley Licence Holder Address: Western House, Place Du Commerce, St Peter Port, Guernsey	Waste Licence: Yes Site Reference: 4400/B392, 20B392(87), WD20 B392 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 02/09/1983 Licence Surrender: 29/01/1990	Operator: Northern Properties Limited Licence Holder: Northern Properties Limited First Recorded 30/09/1983 Last Recorded: 29/01/1990
2	57m NE	Site Address: Wilthorpe Road, Redbrook, Barnsley Licence Holder Address: High Street, South Elmsall, Pontefract	Waste Licence: Yes Site Reference: WD20 B390, 4400/B390, 20B390(86) Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 02/09/1983 Licence Surrender: 03/05/1988	Operator: Tara Civil Engineering Limited Licence Holder: Tara Civil Engineering Limited First Recorded 02/09/1983 Last Recorded: 03/05/1988

ID	Location	Details		
3	214m NE	Site Address: Land To East Of Whaley Road, Barugh Green, Barnsley Licence Holder Address: 31 Bence Lane, Darton	Waste Licence: Yes Site Reference: WD20 B1050 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 15/03/1994 Licence Surrender: -	Operator: Mydrin Limited Licence Holder: Autogel Limited/Mydrinlts First Recorded 15/03/1994 Last Recorded: -
A	220m E	Site Address: Redbrook Road, Gawber, Barnsley Licence Holder Address: -	Waste Licence: - Site Reference: 4400/(4) Waste Type: Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Darton Urban District Council Licence Holder: Darton Urban District Council / South Yorkshire County Council First Recorded 31/12/1965 Last Recorded: 31/12/1975
5	291m N	Site Address: Whaley Road, Claycliffe Industrial Estate, Barugh Green road, Barugh, Barnsley Licence Holder Address: PO Box 1, Whaley Road, Barugh, Barnsley	Waste Licence: Yes Site Reference: 4400/B502, 20B502(81), WD20 B502 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 24/03/1986 Licence Surrender: 22/07/1992	Operator: Amco Limited Licence Holder: Amco Industries Holdings Limited First Recorded 31/03/1986 Last Recorded: 22/07/1992
6	366m N	Site Address: Tipping of Builders Waste opposite Whaley Road, Whaley Road, Barugh, Barnsley Licence Holder Address: Amco Compound, Whaley Road, Barugh, Barnsley	Waste Licence: Yes Site Reference: WD24 B378, 4400/B375, 20B375(84), WD20 B375 Waste Type: Inert, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 14/04/1983 Licence Surrender: 02/07/1984	Operator: Longden Homes Licence Holder: Amco Industries Holdings Limited First Recorded 30/04/1983 Last Recorded: 02/07/1984
7	379m NE	Site Address: Dayhouse Lane And Wilthorpe Road, Gawber, Barnsley Licence Holder Address: -	Waste Licence: - Site Reference: 4400/(135) Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: Mr B Dixon Licence Holder: Mr B Dixon First Recorded - Last Recorded: -

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	**2**

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Address	Further Details	Date
B	253m N	Site Address: N/A	Type of Site: Ground Workings and Refuse Heap Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1961
B	450m N	Site Address: Whaley Road, Low Barugh, BARNSLEY, South Yorkshire, S75 1HT	Type of Site: Recycling Centre (Conversion) Planning application reference: 2006/1242 Description: Scheme comprises change of use of land to B2 waste recycling centre. An application (ref: 2006/1242) for detailed planning permission was granted by Barnsley B.C. Planning decision obtained Data source: Historic Planning Application Data Type: Point	-

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	**0**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	**9**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

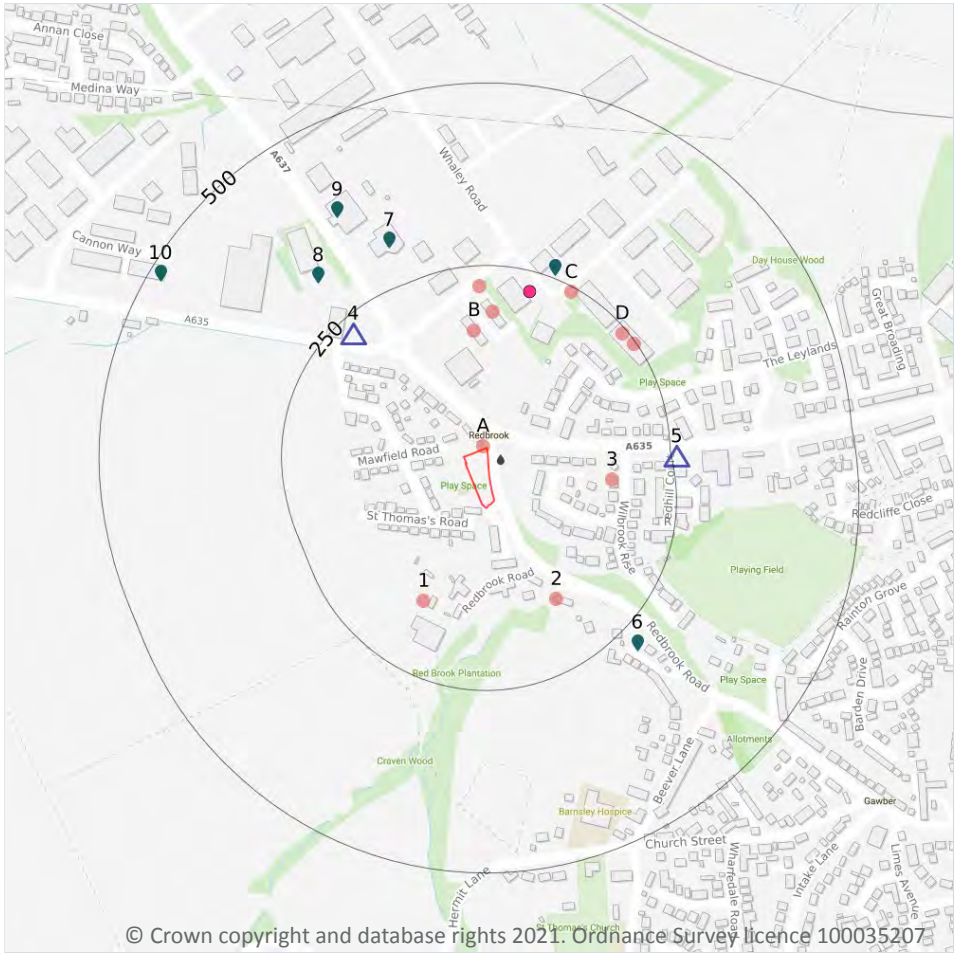
Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Site	Reference	Category	Sub-Category	Description
C	268m N	UnitF Zenith Park Whaley Road Barnsley South Yorkshire S75 1HT	EPR/KH0015JV/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place

ID	Location	Site	Reference	Category	Sub-Category	Description
C	303m N	Amalgamated Construction Ltd, Amalgamated Construction Ltd, Whaley Road, BARNSLEY, S75 1HT	WEX160097	Using waste exemption	Not on a Farm	Use of waste in construction
C	303m N	Whirlpool UK Appliances Ltd, Unit F, Zenith Business Park, Baurgh Green, Barnsley, S75 1HT	WEX167716	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
C	303m N	Whirlpool UK Appliances Ltd, Unit F, Zenith Business Park, Baurgh Green, Barnsley, S75 1HT	WEX167716	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	303m N	Amalgamated Construction Ltd, Whaley Road, Barugh, Barnsley, S75 1HT	WEX174486	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	303m N	Amalgamated Construction Ltd, Whaley Road, Barugh, Barnsley, S75 1HT	WEX174486	Storing waste exemption	Not on a farm	Storage of waste in secure containers
C	303m N	WHALEY ROAD, BARNSLEY, S75 1HT	WEX091827	Using waste exemption	Not on a farm	Use of waste in construction
C	322m NE	Unit F, Zenith Business Park, Baurgh Green, Barnsley, S75 1HT	WEX006072	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	322m NE	Unit F, Zenith Business Park, Baurgh Green, Barnsley, S75 1HT	WEX006072	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Licensed pollutant release (Part A(2)/B)

Radioactive Substance Authorisations

Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	10

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
A	4m N	Electricity Sub Station	South Yorkshire, S75	Electrical Features	Infrastructure and Facilities
1	153m SW	Silo	South Yorkshire, S75	Hoppers and Silos	Farming
2	157m SE	Burrows Toyota Barnsley	14, Redbrook Road, Barnsley, South Yorkshire, S75 2RS	New Vehicles	Motoring

ID	Location	Company	Address	Activity	Category
B	162m N	Advanced	2 Morston Claycliffe Office Park, Whaley Road, Barnsley, South Yorkshire, S75 1HQ	Special Purpose Machinery and Equipment	Industrial Products
3	164m E	Any Road Minicoaches	6, Wilbrook Rise, Barnsley, South Yorkshire, S75 1JD	Vehicle Hire and Rental	Hire Services
B	187m N	Scorpion	4 Morston Claycliffe Office Park, Whaley Road, Barnsley, South Yorkshire, S75 1HQ	Vehicle Hire and Rental	Hire Services
B	222m N	Electricity Sub Station	South Yorkshire, S75	Electrical Features	Infrastructure and Facilities
C	243m NE	Electricity Sub Station	South Yorkshire, S75	Electrical Features	Infrastructure and Facilities
D	243m NE	Denby Dale	Unit J Zenith Park, Whaley Road, Barnsley, South Yorkshire, S75 1HT	Clothing, Components and Accessories	Consumer Products
D	247m NE	Ceag Ltd	Unit K Zenith Park, Whaley Road, Barnsley, South Yorkshire, S75 1HT	Lampshades and Lighting	Consumer Products

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**2**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	LPG	Status
4	227m NW	OBSOLETE	Claycliffe Road, A365, Redbrook, Barnsley, South Yorkshire, S75 1HS	Not Applicable	Obsolete
5	257m E	OBSOLETE	Wilthorpe Road, Barnsley, South Yorkshire, S75 1JA	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	**0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	7

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
C	264m N	Wordsworth Crushing Ltd, Whaley Road, Barugh Green, Barnsley, S75 1HT	Process: Other Mineral Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
C	264m N	Wordsworth Crushing Ltd, Whaley Road, Barugh Green, Barnsley, S75 1HT	Process: Other Mineral Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
6	275m SE	Pentagon Toyota, Barugh Green Road, Barugh Green, Barnsley, S75 2RS	Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
7	313m N	D C Cook, Barugh Green Rd, Barugh Green, Barnsley, S75 2RS	Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

ID	Location	Address	Details	
8	319m NW	Malcolm Smith Motor Repairs, Claycliffe Rd, Barugh, Barnsley, S75 1HS	Process: Waste Oil Burner 0.4 MW Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
9	380m NW	Alton Cars, Claycliffe Road, Barnsley, S75 1HS	Process: Respraying of Road Vehicles Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
10	486m NW	B & B Road and Trials, Unit 28 Claycliffe Business Park, Barugh Green, Barnsley, S75 1JU	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m **1**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
C	222m N	Static Solutions Limited, Unit 17, Zenith Park,whaley Road,barugh Green, Barnsley, South Yorkshire, S75 1HT	Operator: Static Solutions Limited Type: Disposal Of Radioactive Waste (was Rsa60 Section 6). Permission number: CE2870 Date of approval: -	Effective from: - Last date of update: 06/01/2010 Status: Valid

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m **1**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
A	17m E	REDBROOK ROAD CSO, REDBROOK ROAD, REDBROOK, BARNSLEY, SOUTH YORKSHIRE	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: WRA8507 Permit Version: 1 Receiving Water: RED BROOK	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2005 Effective Date: 31/03/2005 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	0

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer

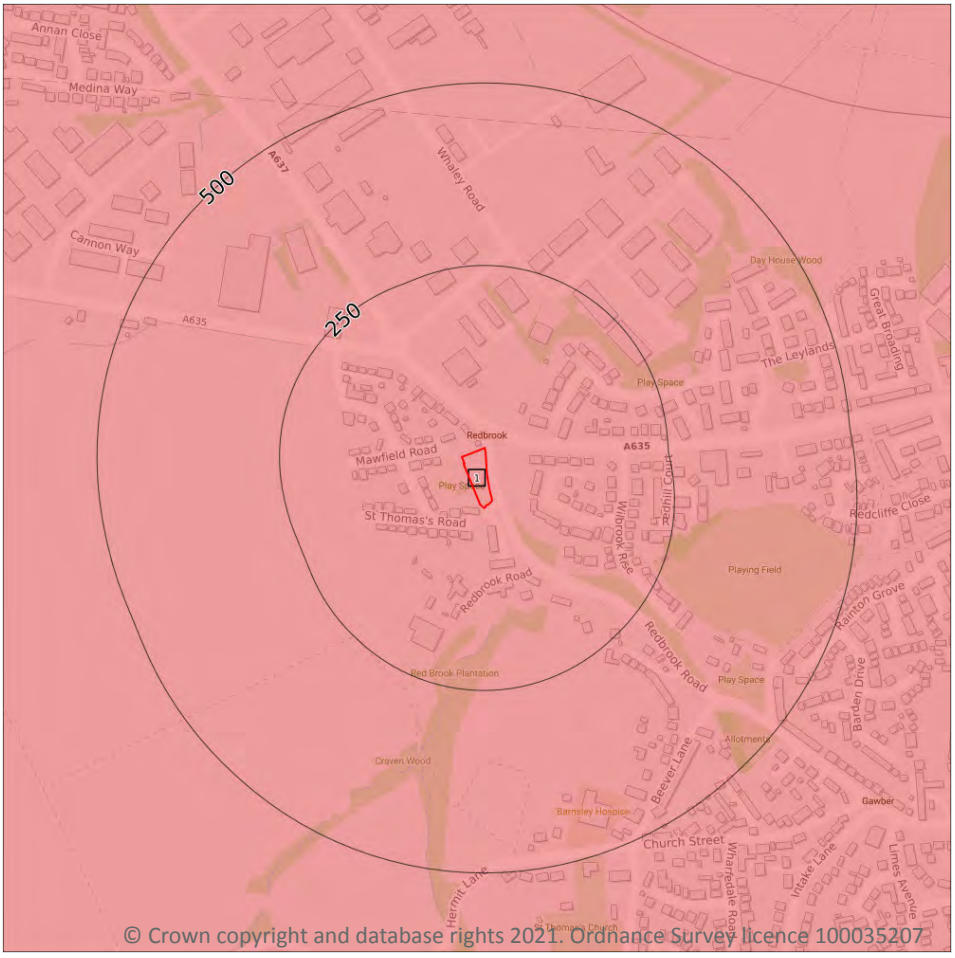
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	1

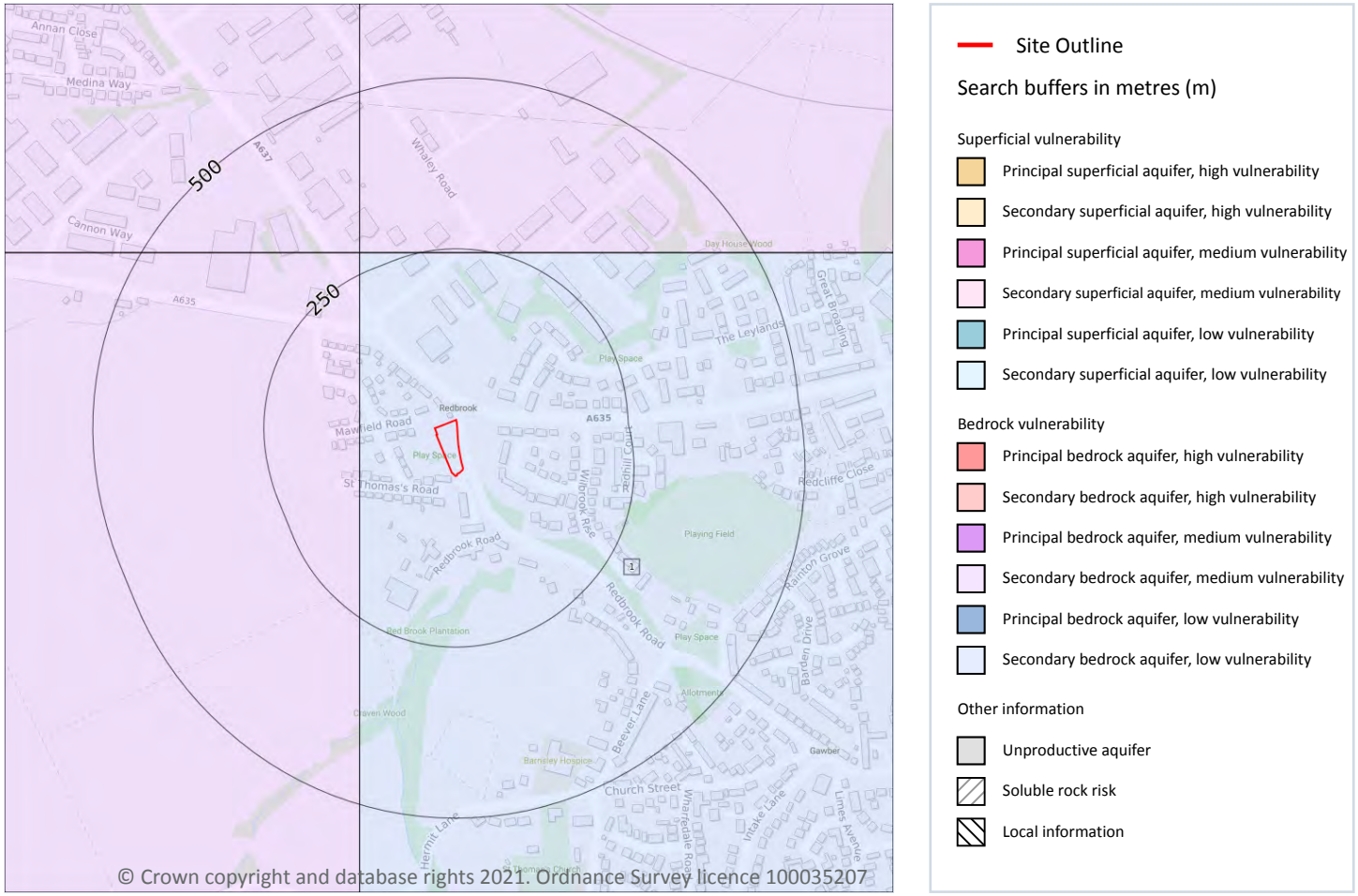
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 42**

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 43**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: >10m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site	**0**

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones

5.6 Groundwater abstractions

Records within 2000m	0

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	**6**

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 47**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	56m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
2	67m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	162m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	201m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	210m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	211m SE	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 47**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 47**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River WB catchment**	**Dearne from Cawthorne Dyke to Lundwood STW**	**GB104027063171**	**Dearne**	**Don and Rother**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	**1**

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 47**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	1238m N	River	Dearne from Cawthorne Dyke to Lundwood STW	GB104027063171	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	**1**

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 47**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Don & Rother Millstone grit & Coal Measures**	**GB40402G992300**	**Poor**	**Poor**	**Good**	**2015**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Environment Agency river and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	1

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

Features are displayed on the River and coastal flooding map on **page 50**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
1	224m NW	June 2007 Flood Event (Ridings Area)	2007-06-25 2007-06-26	Unknown	Unknown	Fluvial

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, Greater than 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 53**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on

a site. The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 55**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	7

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 56**

ID	Location	Name	Woodland Type
3	1409m SW	Unknown	Ancient & Semi-Natural Woodland
4	1439m SW	Unknown	Ancient & Semi-Natural Woodland
-	1586m SW	Hugset Wood	Ancient & Semi-Natural Woodland
-	1602m W	Hugset Wood	Ancient Replanted Woodland
-	1681m W	Hugset Wood	Ancient Replanted Woodland
-	1777m W	Hugset Wood	Ancient Replanted Woodland
-	1930m SW	Hugset Wood	Ancient & Semi-Natural Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	2

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 56**

ID	Location	Name	Local Authority name
1	600m NE	South and West Yorkshire	Barnsley
2	1197m W	South and West Yorkshire	Barnsley

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	3

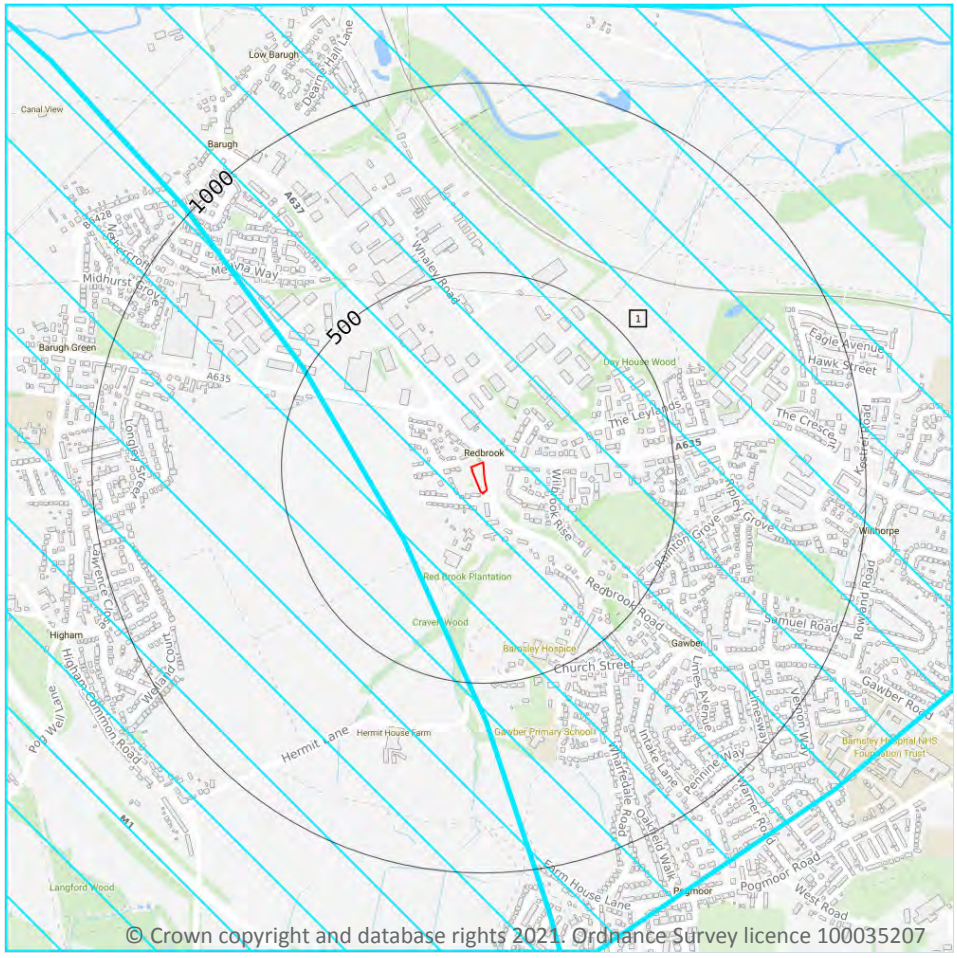
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	**River Dearne NVZ**	**Surface Water**	**S278**	**Existing**

Location	Name	Type	NVZ ID	Status
1690m S	River Dearne NVZ	Surface Water	S278	Existing
1941m E	River Dearne NVZ	Surface Water	S278	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	1

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 62**

ID	Location	Type of developments requiring consultation
1	On site	**Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

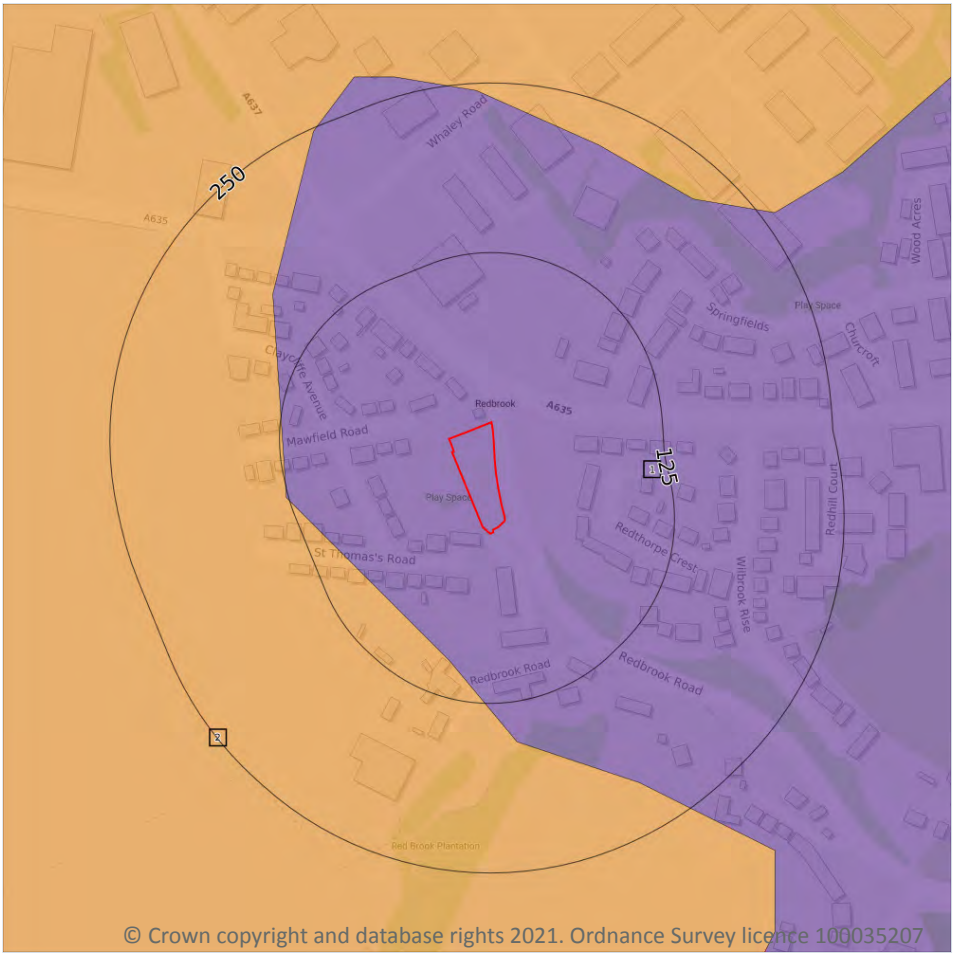
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 66**

ID	Location	Classification	Description
1	**On site**	**Urban**	-
2	87m SW	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	3

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 68**

ID	Location	Main Habitat	Other habitats
1	109m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	126m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	140m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	1

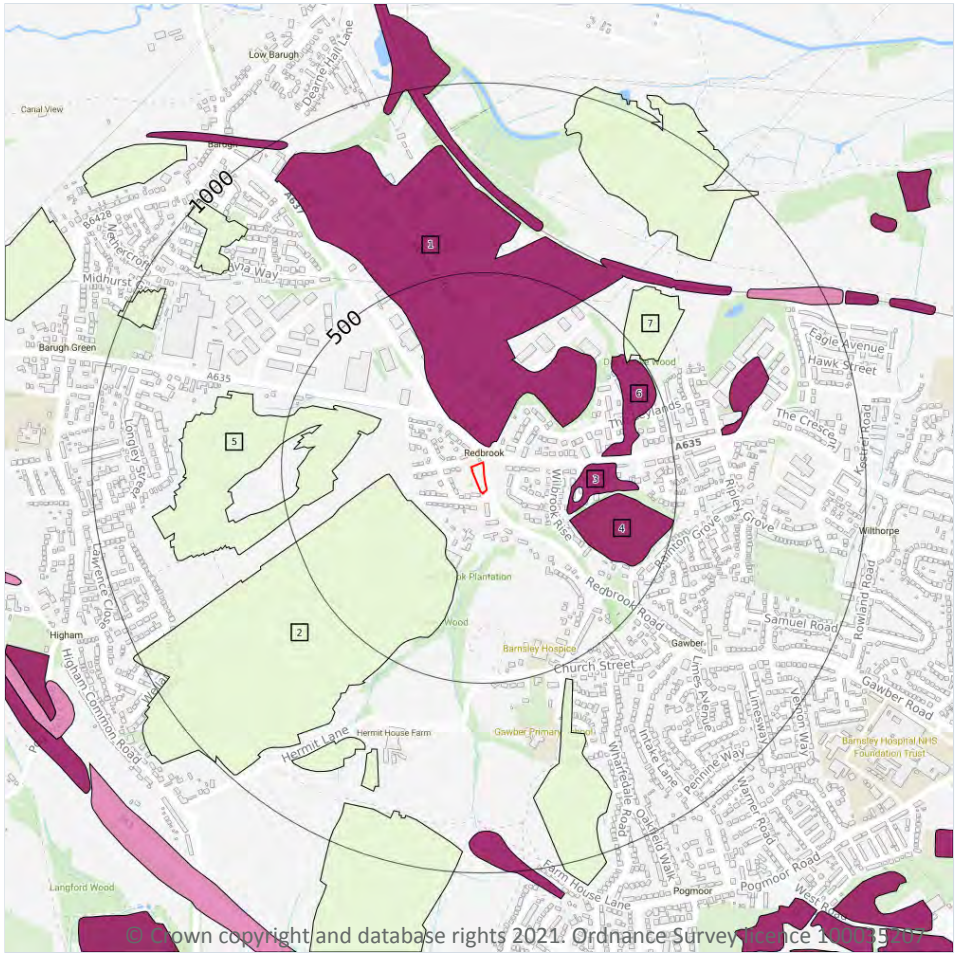
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 70**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE30NW**

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



14.2 Artificial and made ground (10k)

Records within 500m	7

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 71**

ID	Location	LEX Code	Description	Rock description
1	43m N	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
2	147m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
3	217m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
4	233m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
5	268m NW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
6	313m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
7	461m NE	WMGR-ARTDP	Infilled Ground	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	5

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 74**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-MDSS**	**Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Bolsovian Sub-age - Duckmantian Sub-age**
4	75m E	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age

ID	Location	LEX Code	Description	Rock age
5	125m E	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
13	240m E	BNR-SDST	Barnsley Rock - Sandstone	Duckmantian Sub-age
22	306m SE	BNR-SDST	Barnsley Rock - Sandstone	Duckmantian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**31**

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 74**

ID	Location	Category	Description
2	8m W	ROCK	Coal seam, inferred
3	26m E	ROCK	Coal seam, inferred
6	147m SW	ROCK	Coal seam, observed
7	160m W	ROCK	Coal seam, inferred
8	163m SW	ROCK	Coal seam, observed
9	179m SW	ROCK	Coal seam, observed
10	184m SW	ROCK	Coal seam, observed
11	208m E	ROCK	Coal seam, observed
12	220m SE	ROCK	Coal seam, inferred
14	245m NE	ROCK	Coal seam, observed
15	245m SE	ROCK	Coal seam, observed
16	262m S	ROCK	Coal seam, inferred
17	266m N	ROCK	Coal seam, inferred
18	268m NW	ROCK	Coal seam, observed
19	291m E	ROCK	Coal seam, inferred
20	291m W	ROCK	Coal seam, inferred

ID	Location	Category	Description
21	303m W	ROCK	Coal seam, observed
23	311m W	ROCK	Coal seam, observed
24	386m W	ROCK	Coal seam, observed
25	386m NW	ROCK	Coal seam, observed
26	392m S	ROCK	Coal seam, observed
27	400m W	ROCK	Coal seam, inferred
28	411m W	ROCK	Coal seam, observed
29	413m SW	ROCK	Coal seam, observed
30	427m SW	ROCK	Coal seam, inferred
31	443m SE	ROCK	Coal seam, observed
32	450m SE	ROCK	Coal seam, inferred
33	455m S	ROCK	Coal seam, observed
34	461m NE	ROCK	Coal seam, observed
35	486m SE	ROCK	Coal seam, inferred
36	493m S	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

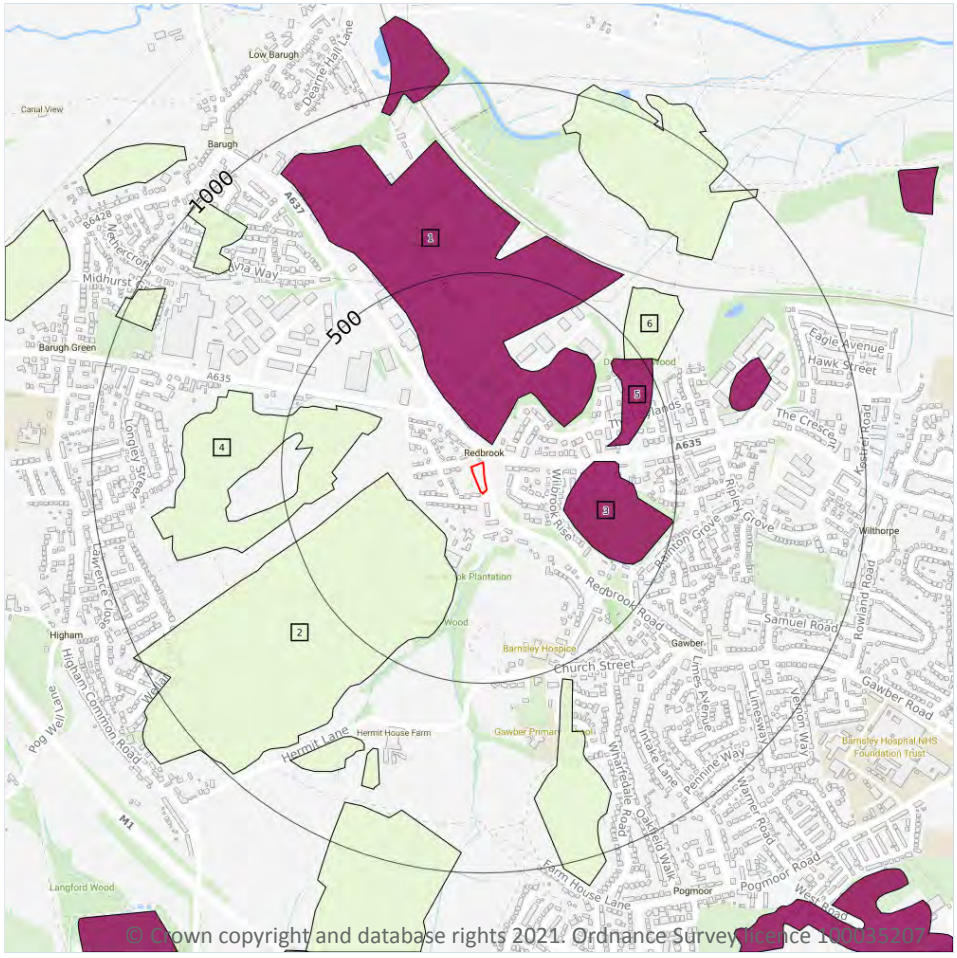
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 77**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW087_barnsley_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



© Crown copyright and database rights 2021. Ordnance Survey Licence 100035207

Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m **6**

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 78**

ID	Location	LEX Code	Description	Rock description
1	52m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	146m SW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	209m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	269m NW	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

ID	Location	LEX Code	Description	Rock description
5	330m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
6	461m NE	WMGR-ARTDP	INFILLED GROUND	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

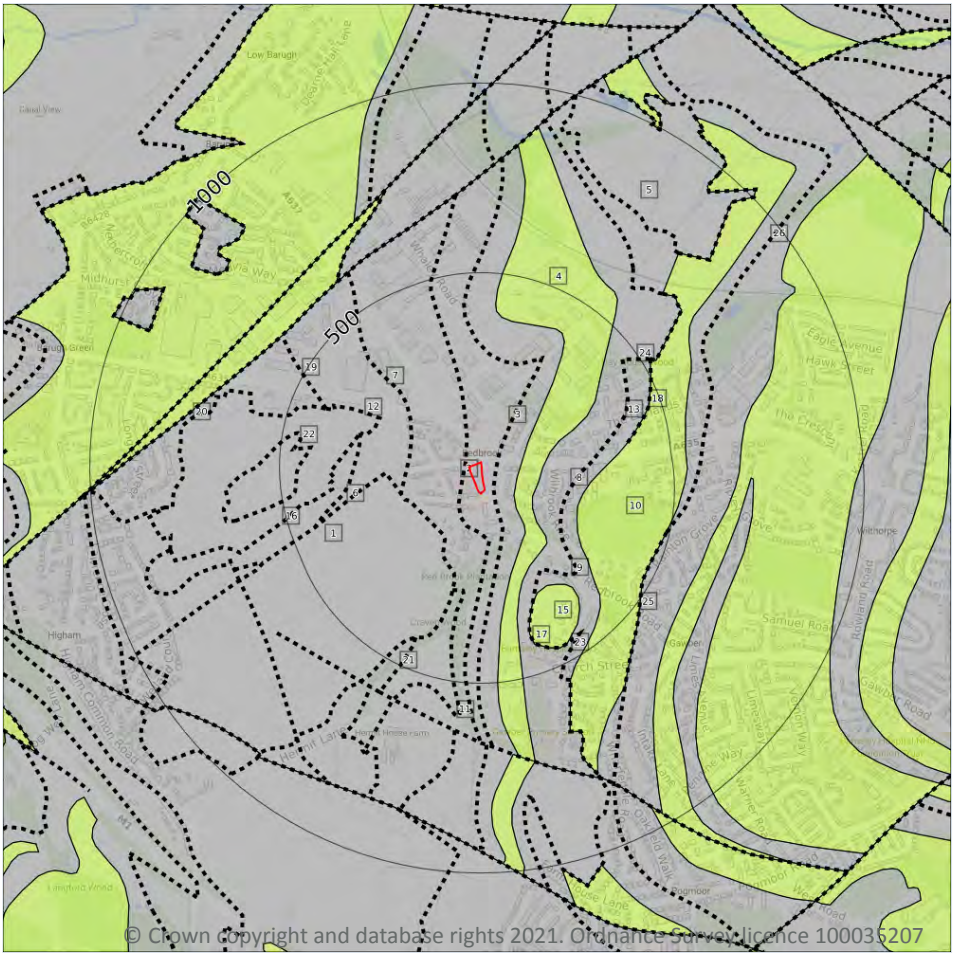
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	5

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 81**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PMCM-MDSS**	**PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
4	78m E	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
5	127m E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10	249m E	BNR-SDST	BARNSLEY ROCK - SANDSTONE	WESTPHALIAN
15	298m SE	BNR-SDST	BARNSLEY ROCK - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m **1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m **21**

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

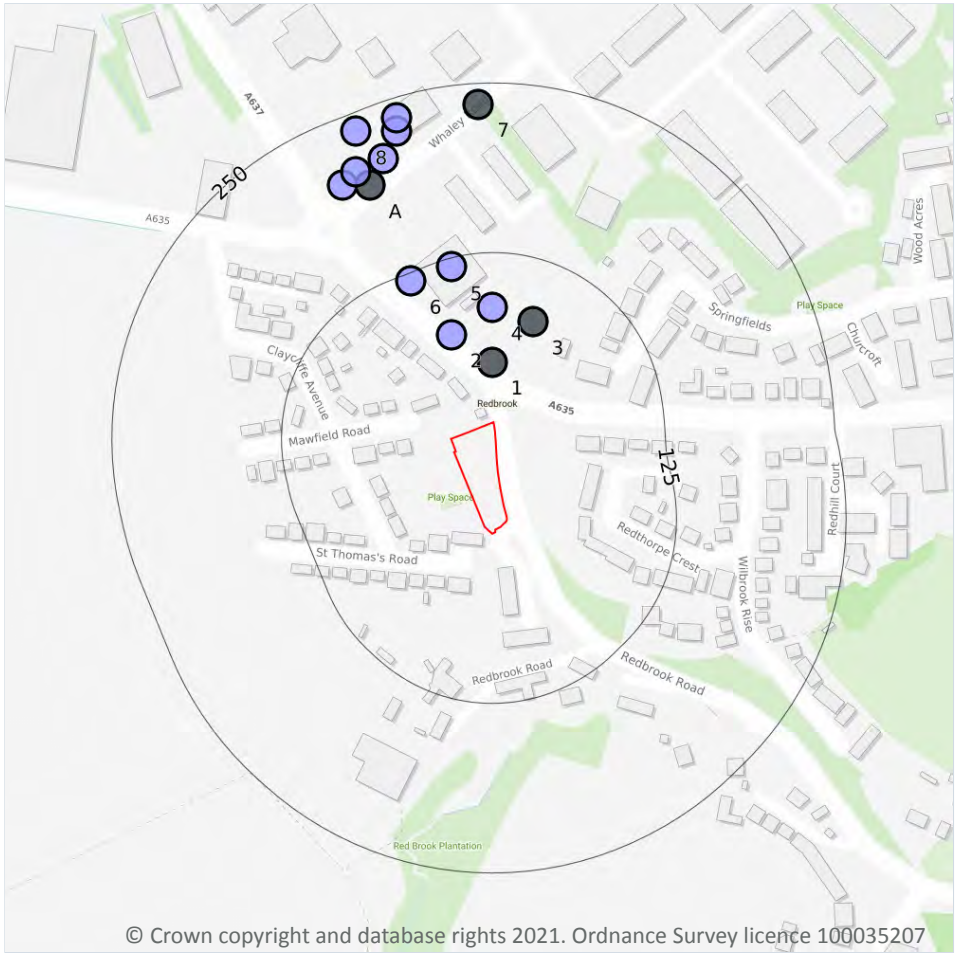
Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 81**

ID	Location	Category	Description
2	12m W	ROCK	Coal seam, inferred
3	23m E	ROCK	Coal seam, inferred
6	146m SW	ROCK	Coal seam, inferred
7	159m W	ROCK	Coal seam, inferred
8	209m E	ROCK	Coal seam, inferred
9	209m E	ROCK	Coal seam, inferred
11	260m S	ROCK	Coal seam, inferred
12	269m NW	ROCK	Coal seam, inferred

ID	Location	Category	Description
13	292m E	ROCK	Coal seam, inferred
14	295m W	ROCK	Coal seam, inferred
16	301m W	ROCK	Coal seam, inferred
17	319m SE	ROCK	Coal seam, inferred
18	386m E	ROCK	Coal seam, inferred
19	407m W	ROCK	Coal seam, inferred
20	407m W	ROCK	Coal seam, inferred
21	416m SW	ROCK	Coal seam, inferred
22	421m W	ROCK	Coal seam, inferred
23	451m SE	ROCK	Coal seam, inferred
24	461m NE	ROCK	Coal seam, inferred
25	477m SE	ROCK	Coal seam, inferred
26	492m E	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m **14**

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

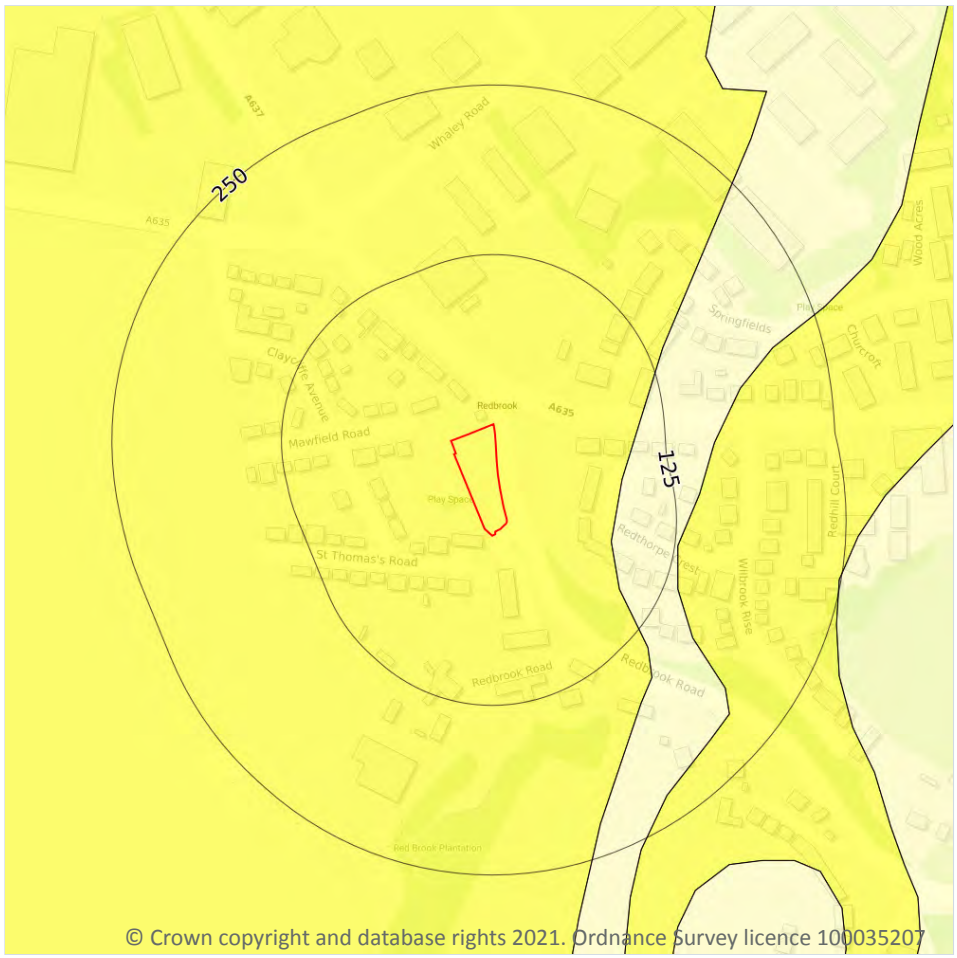
Features are displayed on the Boreholes map on **page 84**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	45m N	432140 407800	REDBROOK BARNSLEY 4/R4	-	Y	N/A
2	71m N	432110 407820	BARUGH GREEN ROAD BARNSLEY 2	4.3	N	15938940

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	80m N	432170 407830	REDBROOK BARNSLEY 5/R5	-	Y	N/A
4	84m N	432140 407840	BARUGH GREEN ROAD BARNSLEY 1	9.0	N	15938938
5	119m N	432110 407870	BARUGH GREEN ROAD BARNSLEY 4	6.0	N	15938942
6	120m N	432080 407860	BARUGH GREEN ROAD BARNSLEY 3	4.45	N	15938941
A	196m N	432050 407930	REDBROOK BARNSLEY 1/R1	-	Y	N/A
A	203m NW	432030 407930	CLAYCLIFFE ROAD BARNSLEY 2	2.6	N	16118777
A	209m N	432040 407940	CLAYCLIFFE ROAD BARNSLEY 1	3.4	N	16118776
A	211m N	432060 407950	CLAYCLIFFE ROAD BARNSLEY 3	4.65	N	16118778
A	226m N	432070 407970	CLAYCLIFFE ROAD BARNSLEY 5	4.5	N	16118780
7	235m N	432130 407990	REDBROOK BARNSLEY 2/R2	-	Y	N/A
A	235m N	432070 407980	CLAYCLIFFE ROAD BARNSLEY 6	3.6	N	16118781
8	237m N	432040 407970	CLAYCLIFFE ROAD BARNSLEY 4	4.1	N	16118779

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

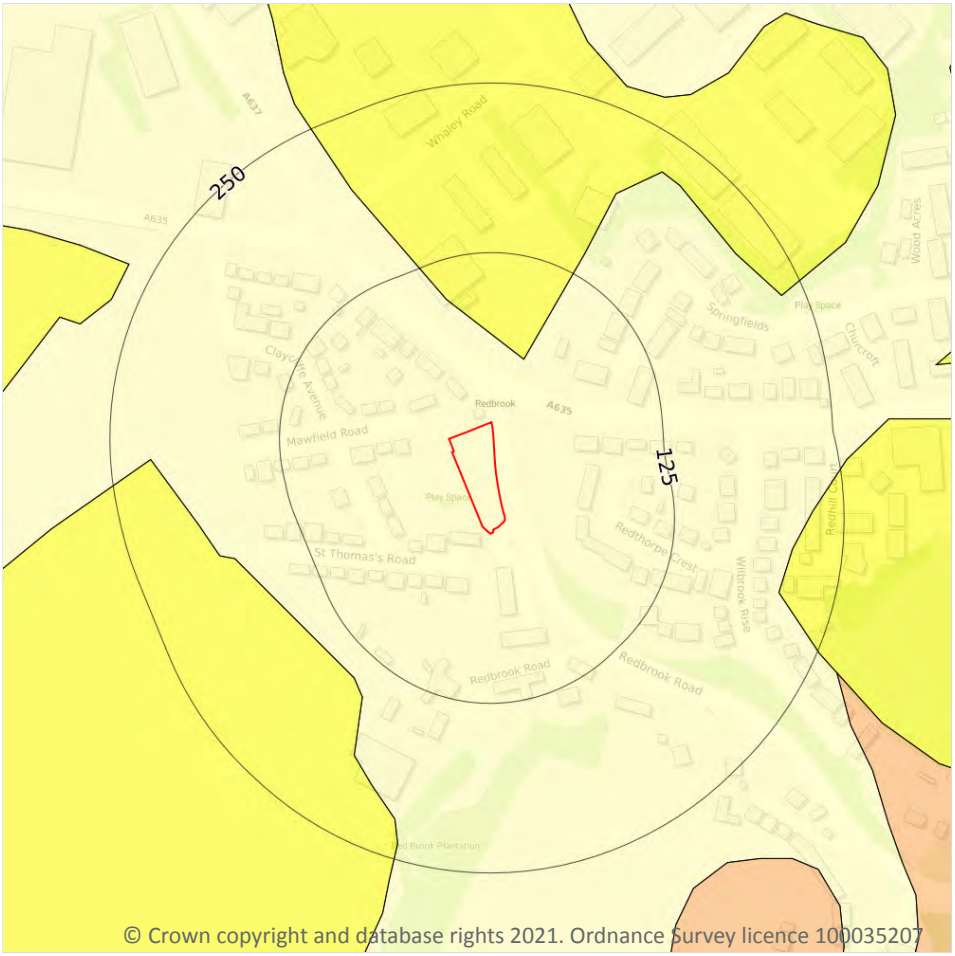
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 86**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

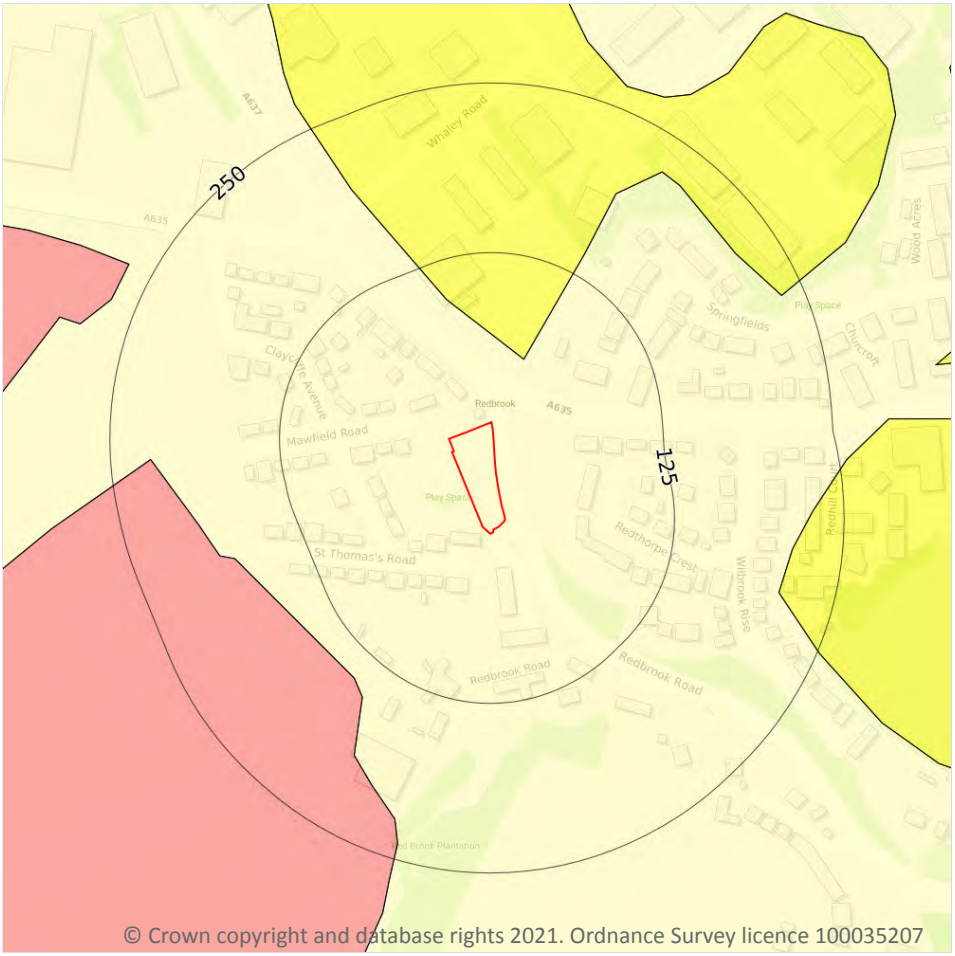
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 87**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

17.3 Compressible deposits

Records within 50m	1

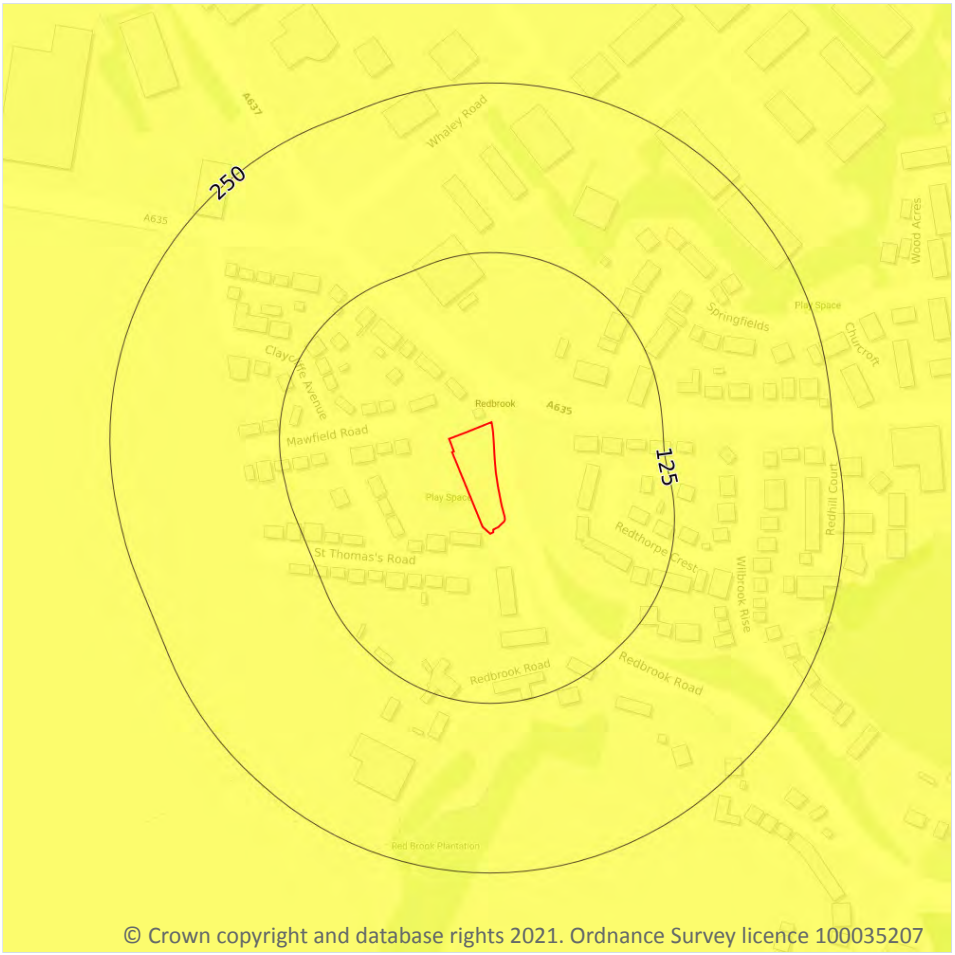
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 88**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

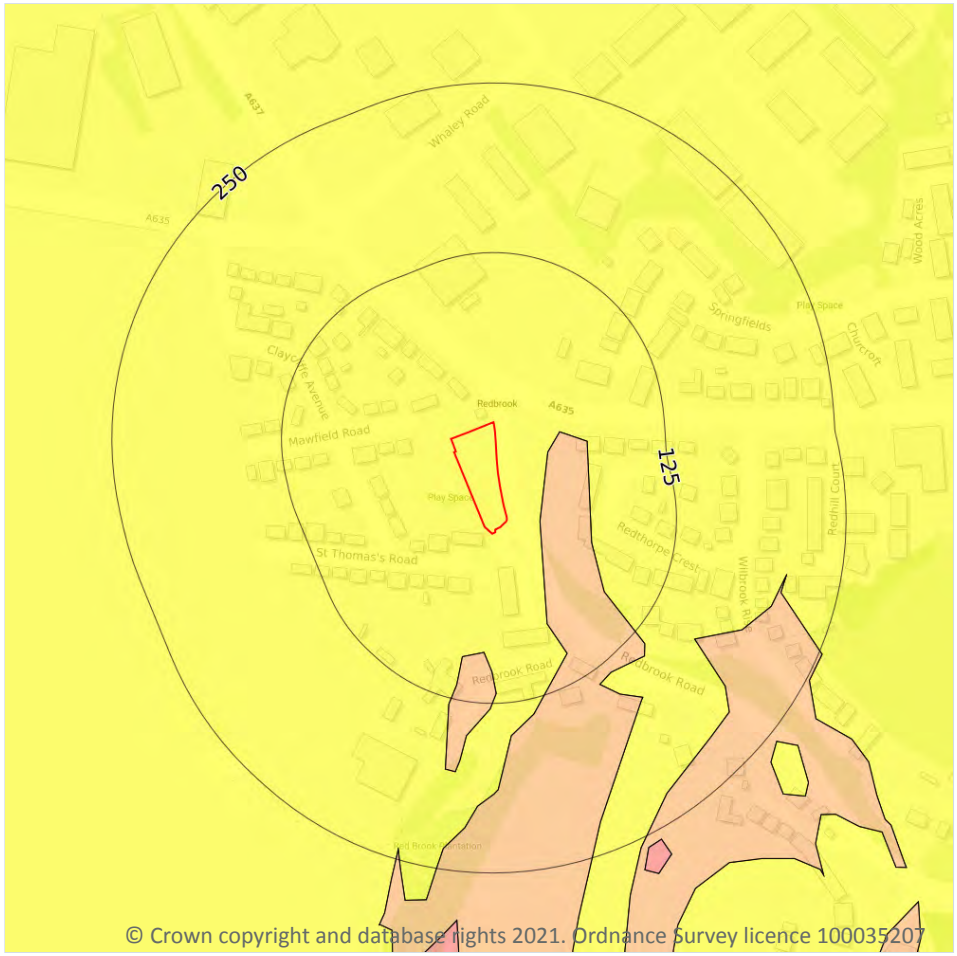
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 89**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

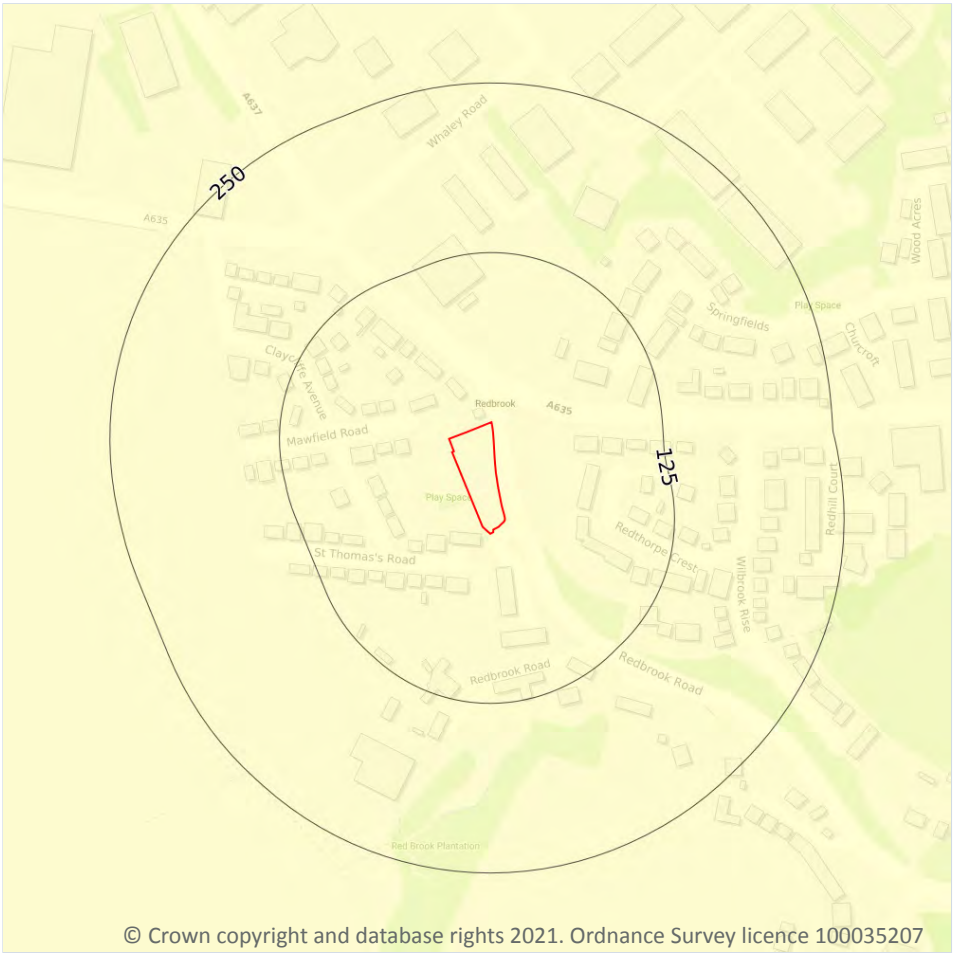
Features are displayed on the Natural ground subsidence - Landslides map on **page 90**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

Location	Hazard rating	Details
24m E	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

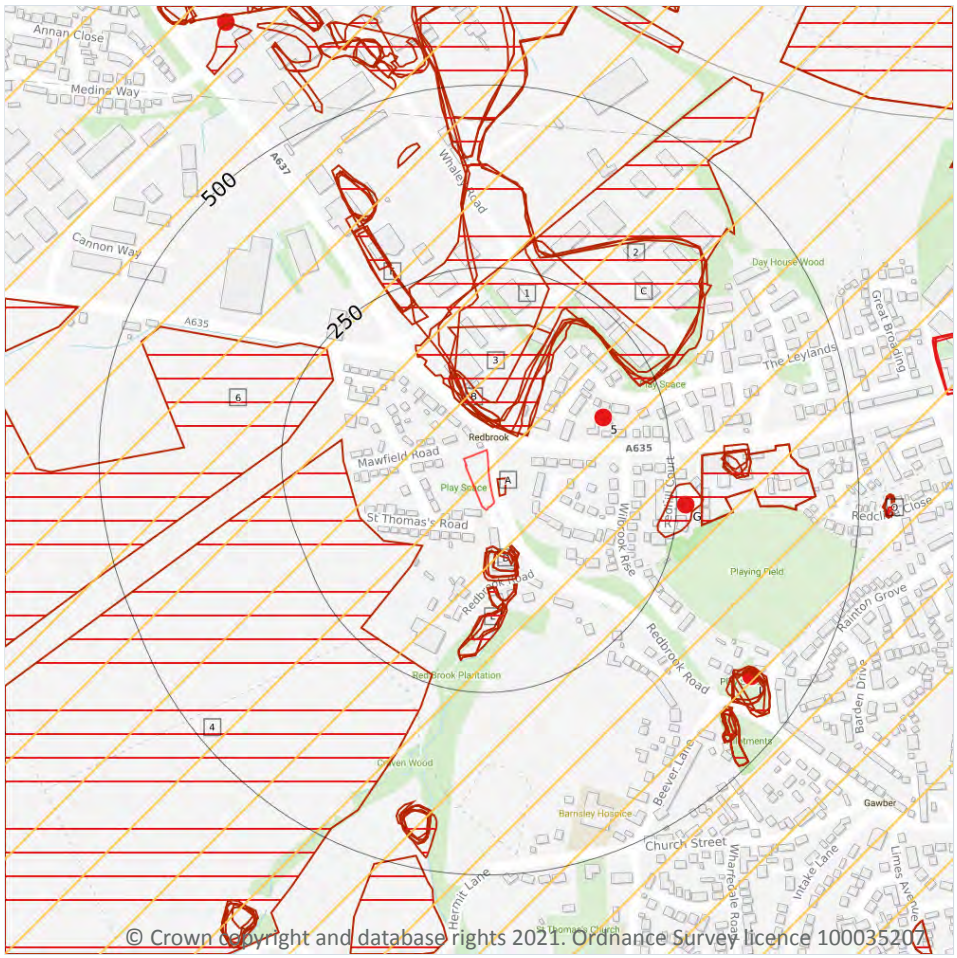
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 92**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	3

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining, ground workings and natural cavities map on **page 94**

ID	Location	Details	Description
5	165m E	Name: Whalley Road OCCS Address: Gawber, BARNSLEY, South Yorkshire Commodity: Coal, Surface Mined Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
G	262m E	Name: Gawber Address: Gawber, BARNSLEY, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority
J	425m SE	Name: Gawber Address: Gawber, BARNSLEY, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	25

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 94**

ID	Location	Land Use	Year of mapping	Mapping scale
A	9m E	Filter Tanks	1904	1:10560
B	32m N	Refuse Heap	1948	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
B	32m N	Refuse Heap	1948	1:10560
1	33m NE	Refuse Heap	1966	1:10560
C	34m NE	Unspecified Disused Tip	1973	1:10000
2	38m NE	Unspecified Disused Workings	1993	1:10000
C	38m NE	Unspecified Disused Tip	1982	1:10000
3	39m N	Refuse Heap	1929	1:10560
C	41m N	Refuse Heap	1951	1:10560
D	51m S	Pond	1929	1:10560
D	51m S	Pond	1904	1:10560
D	56m S	Pond	1891	1:10560
D	58m S	Pond	1850	1:10560
D	59m S	Pond	1973	1:10000
D	59m S	Pond	1966	1:10560
4	98m SW	Opencast Workings	1966	1:10560
E	106m S	Ponds	1929	1:10560
E	107m S	Ponds	1904	1:10560
E	107m S	Ponds	1891	1:10560
E	136m S	Pond	1850	1:10560
F	197m N	Cuttings	1929	1:10560
6	209m NW	Opencast Workings	1966	1:10560
F	218m NW	Cuttings	1948	1:10560
F	218m N	Cuttings	1951	1:10560
G	226m E	Sandstone Quarry	1850	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	12

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 94**

ID	Location	Land Use	Year of mapping	Mapping scale
O	538m E	Unspecified Shaft	1948	1:10560
O	540m E	Unspecified Shaft	1951	1:10560
R	628m E	Unspecified Mine	1966	1:10560
R	628m E	Unspecified Mine	1973	1:10000
R	630m E	Unspecified Mine	1982	1:10000
-	669m E	Colliery	1904	1:10560
-	672m E	Colliery	1948	1:10560
-	704m E	Colliery	1951	1:10560
-	727m E	Unspecified Old Shafts	1948	1:10560
-	730m E	Unspecified Old Shafts	1951	1:10560
-	742m E	Unspecified Old Shafts	1948	1:10560
-	746m E	Unspecified Old Shafts	1951	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	1

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining, ground workings and natural cavities map on **page 94**

ID	Location	Name	Commodity	Class	Likelihood
A	**On site**	**Not available**	**Iron Ore (Bedded)**	**B**	**Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered**

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

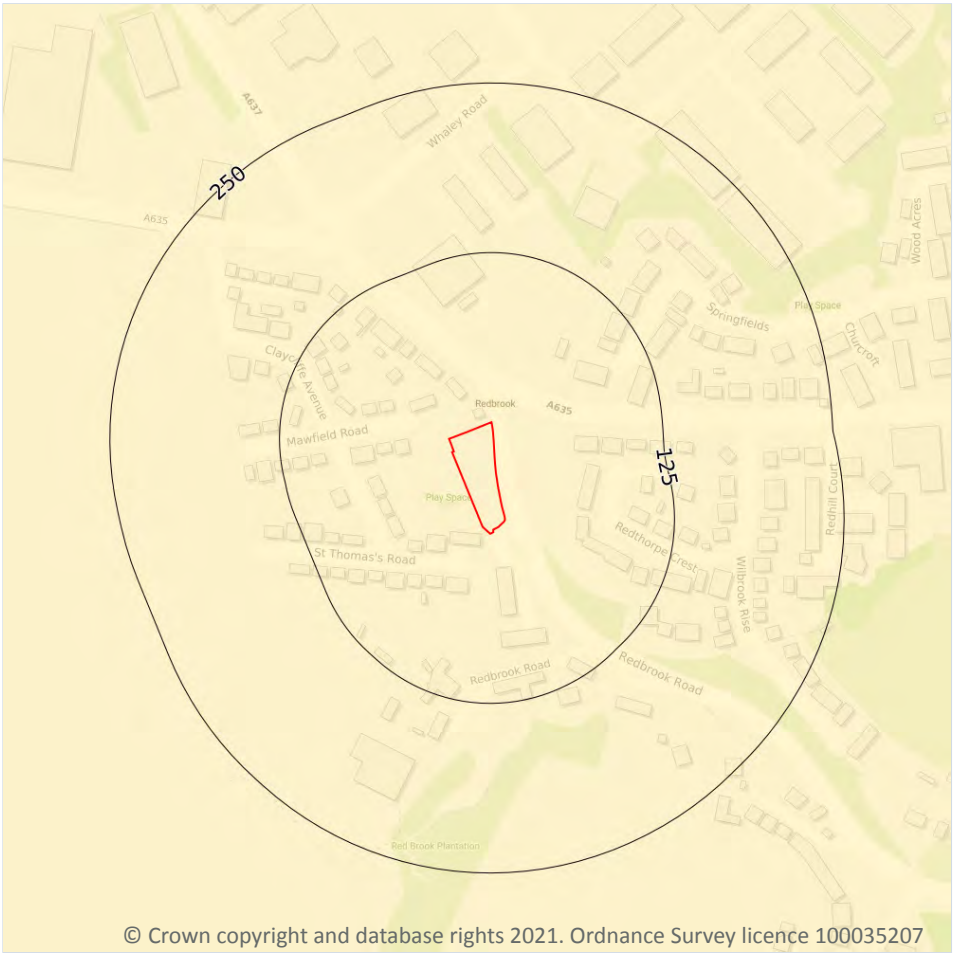
18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 100**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**None**

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	1

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**25 - 35 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

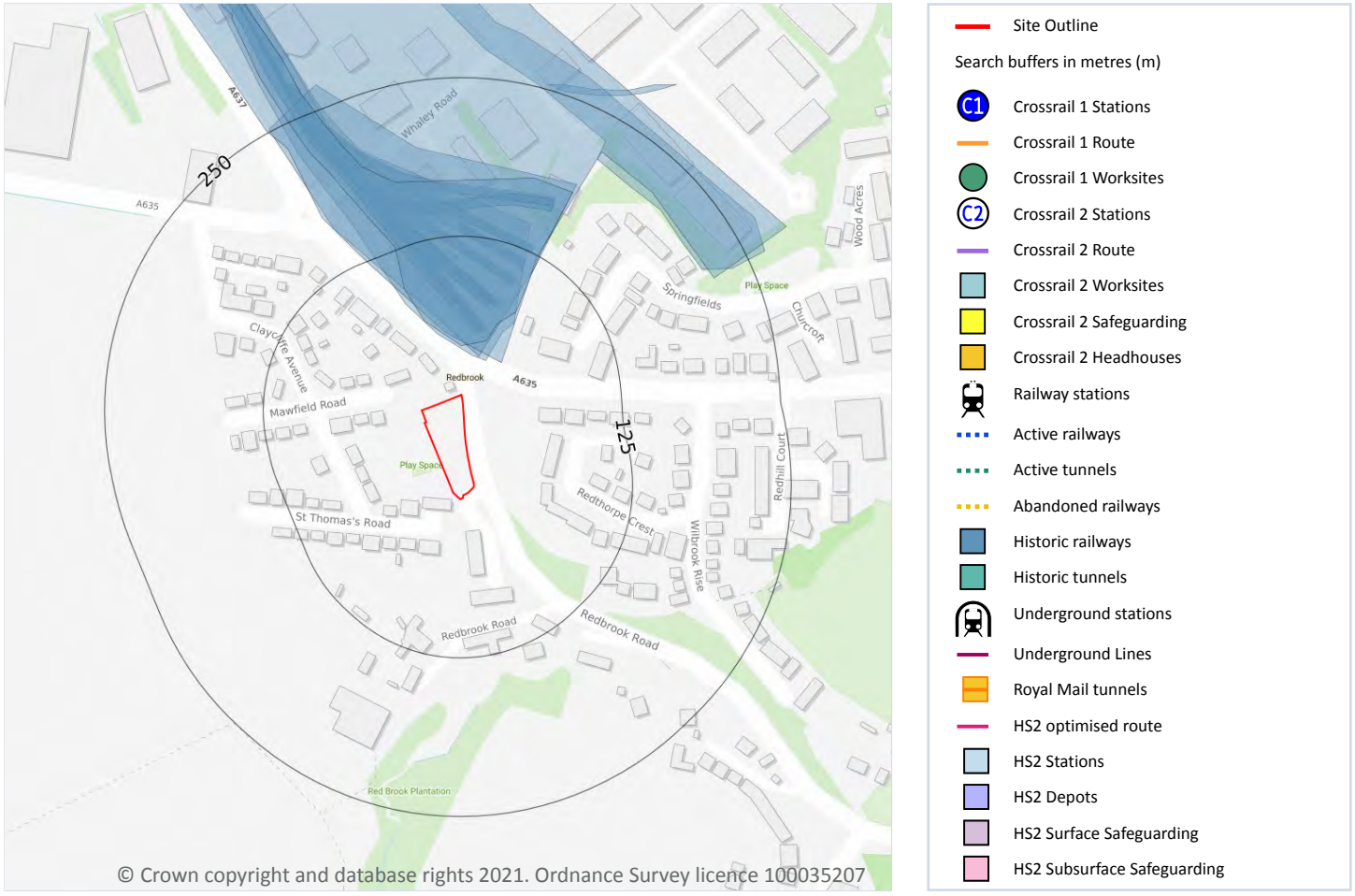
20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



© Crown copyright and database rights 2021. Ordnance Survey licence 100035207

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	8

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 102**

Location	Land Use	Year of mapping	Mapping scale
32m N	Railway Sidings	1948	10560
33m NE	Railway Sidings	1966	10560
37m NE	Railway Sidings	1951	10560
39m N	Railway Sidings	1929	10560
50m N	Railway Sidings	1938	10560
51m N	Railway Sidings	1959	1250
52m N	Railway Sidings	1959	2500
192m N	Railway	1931	-

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

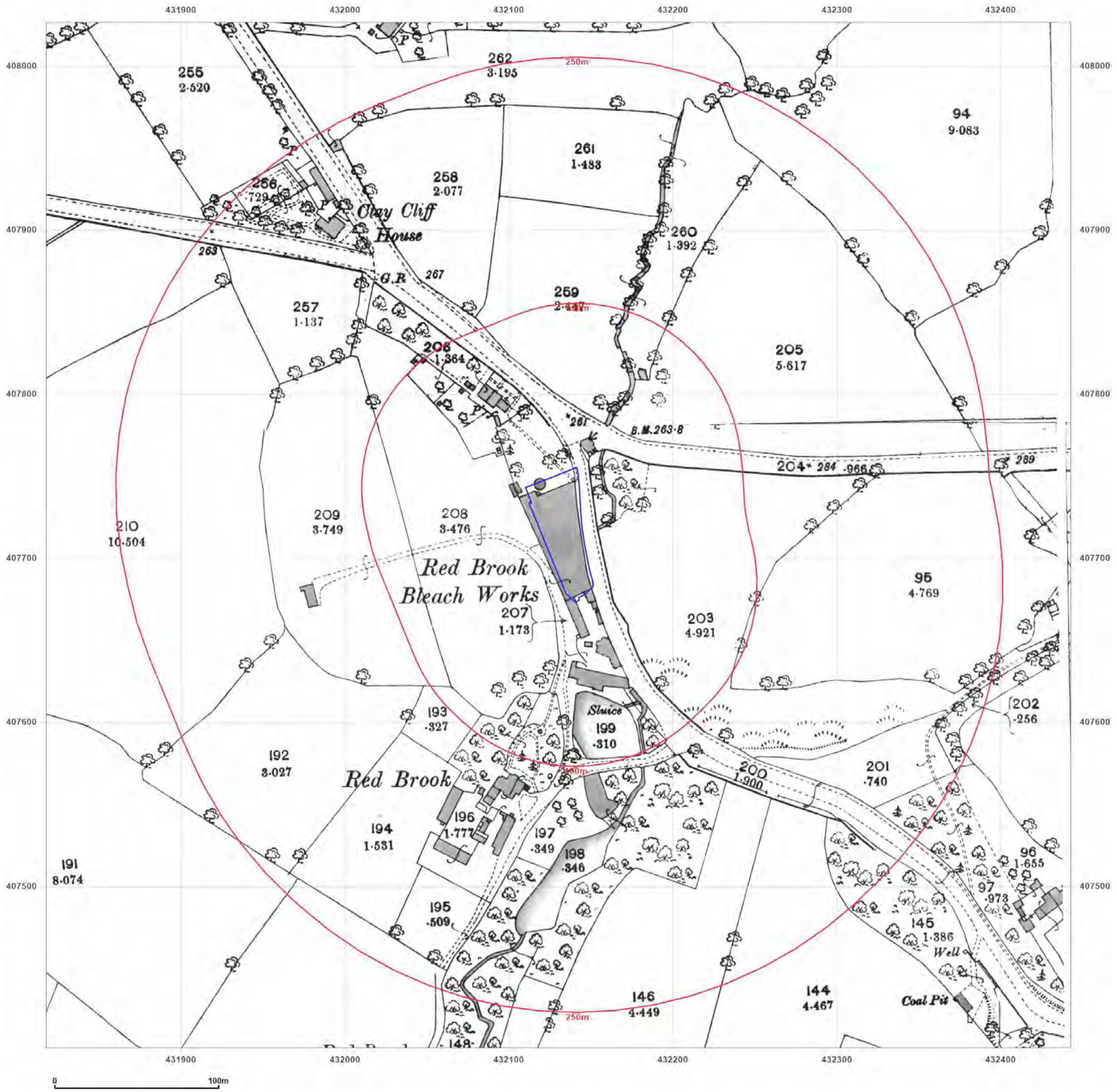
Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

Appendix 2

Historical Maps



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: County Series

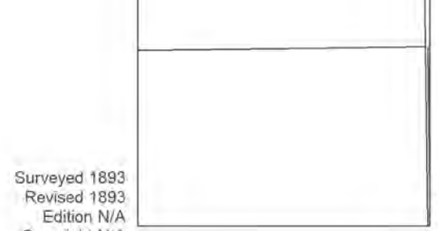
Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

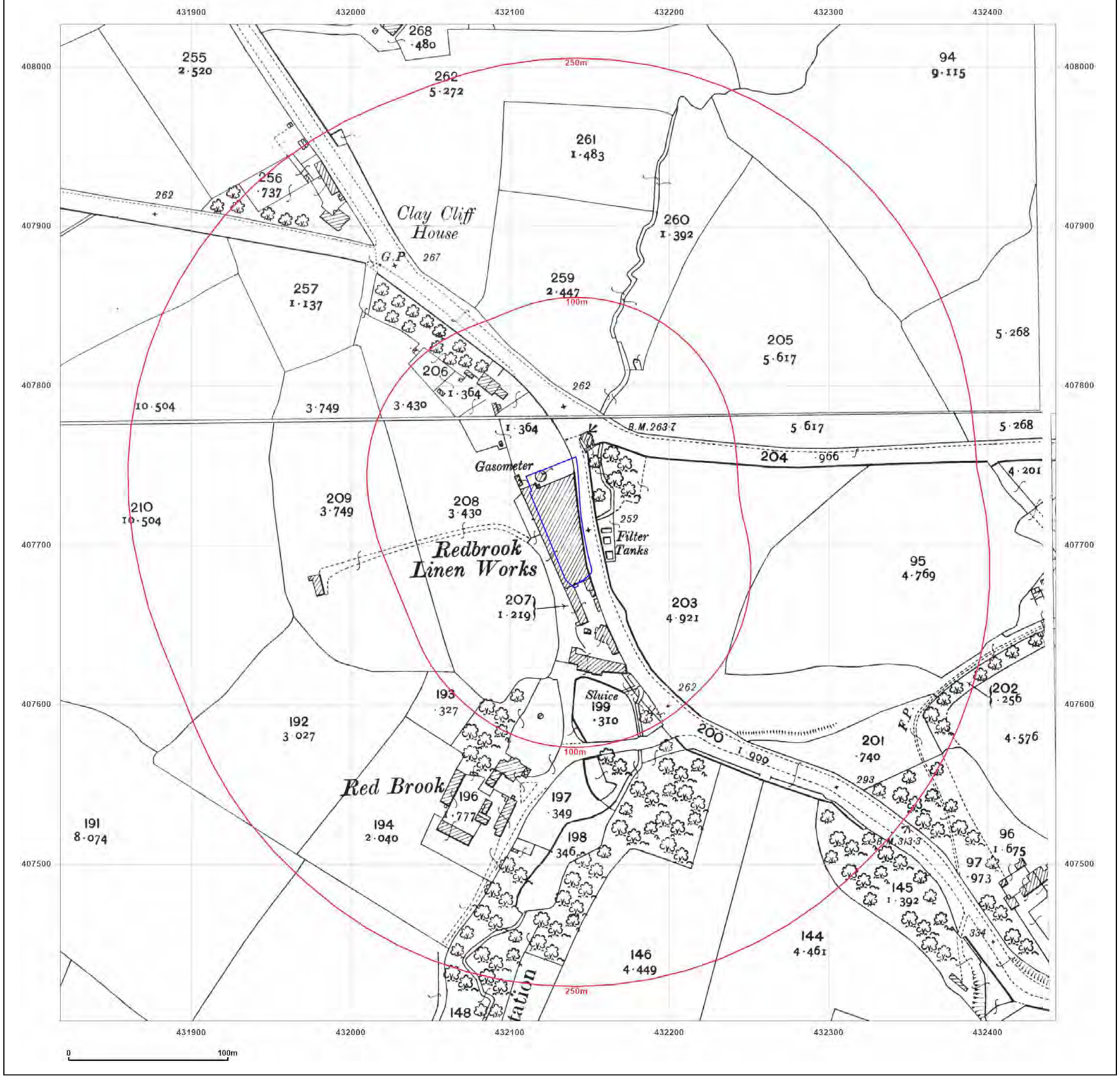
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

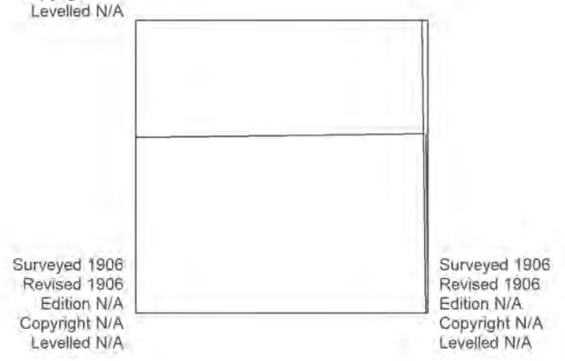
Map Name: County Series

Map date: **1906**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Groundsure INSIGHTS

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1959**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1930

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1930

Groundsure INSIGHTS

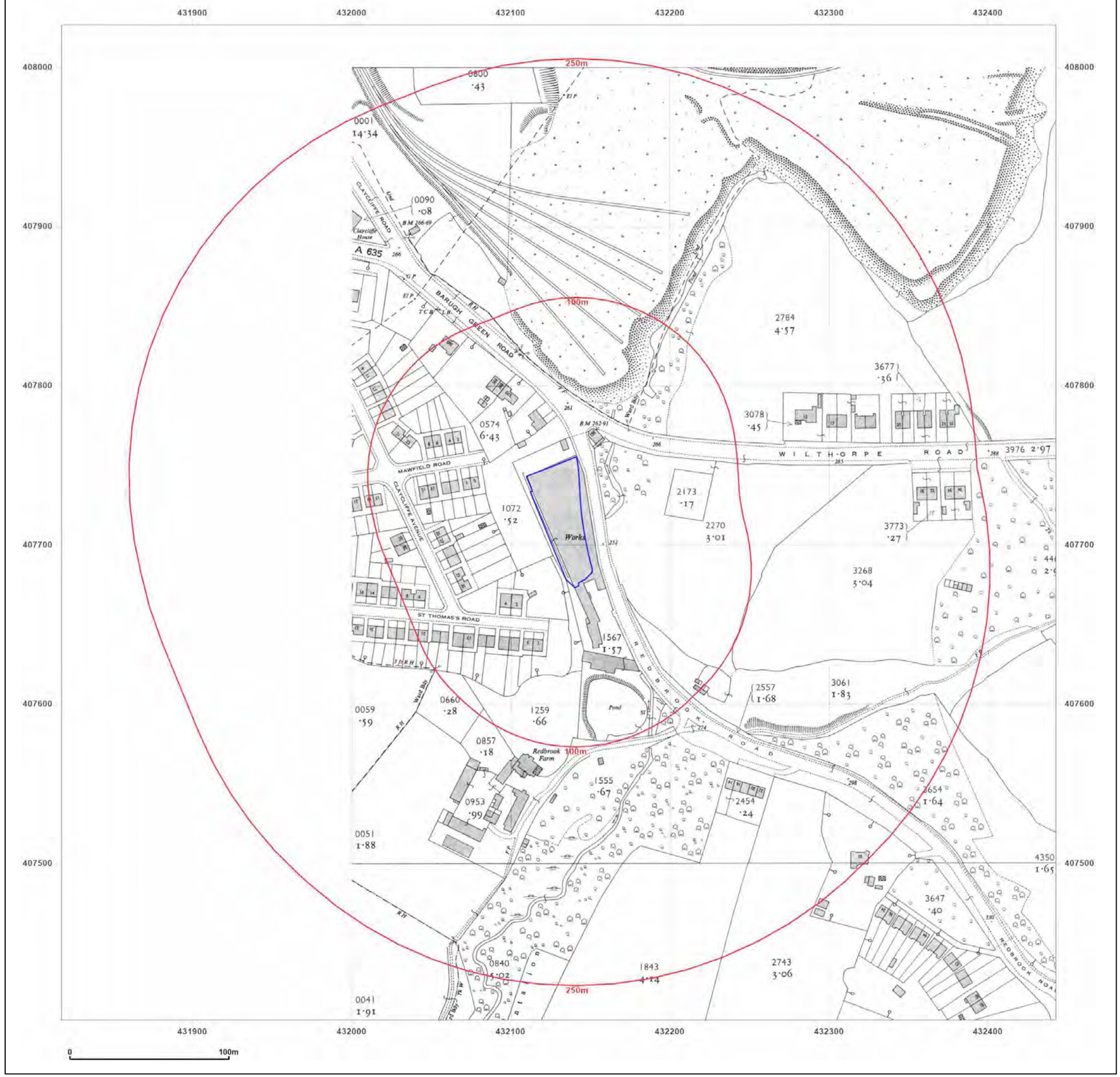
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

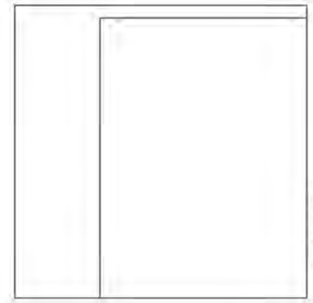
Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Groundsure INSIGHTS

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1959-1961**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1961
Revised 1961
Edition N/A
Copyright 1962
Levelled 1959

Surveyed 1961
Revised 1961
Edition 1962
Copyright 1962
Levelled 1959

Surveyed 1961
Revised 1961
Edition N/A
Copyright 1962
Levelled 1959

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1969
Levelled 1963

Groundsure INSIGHTS

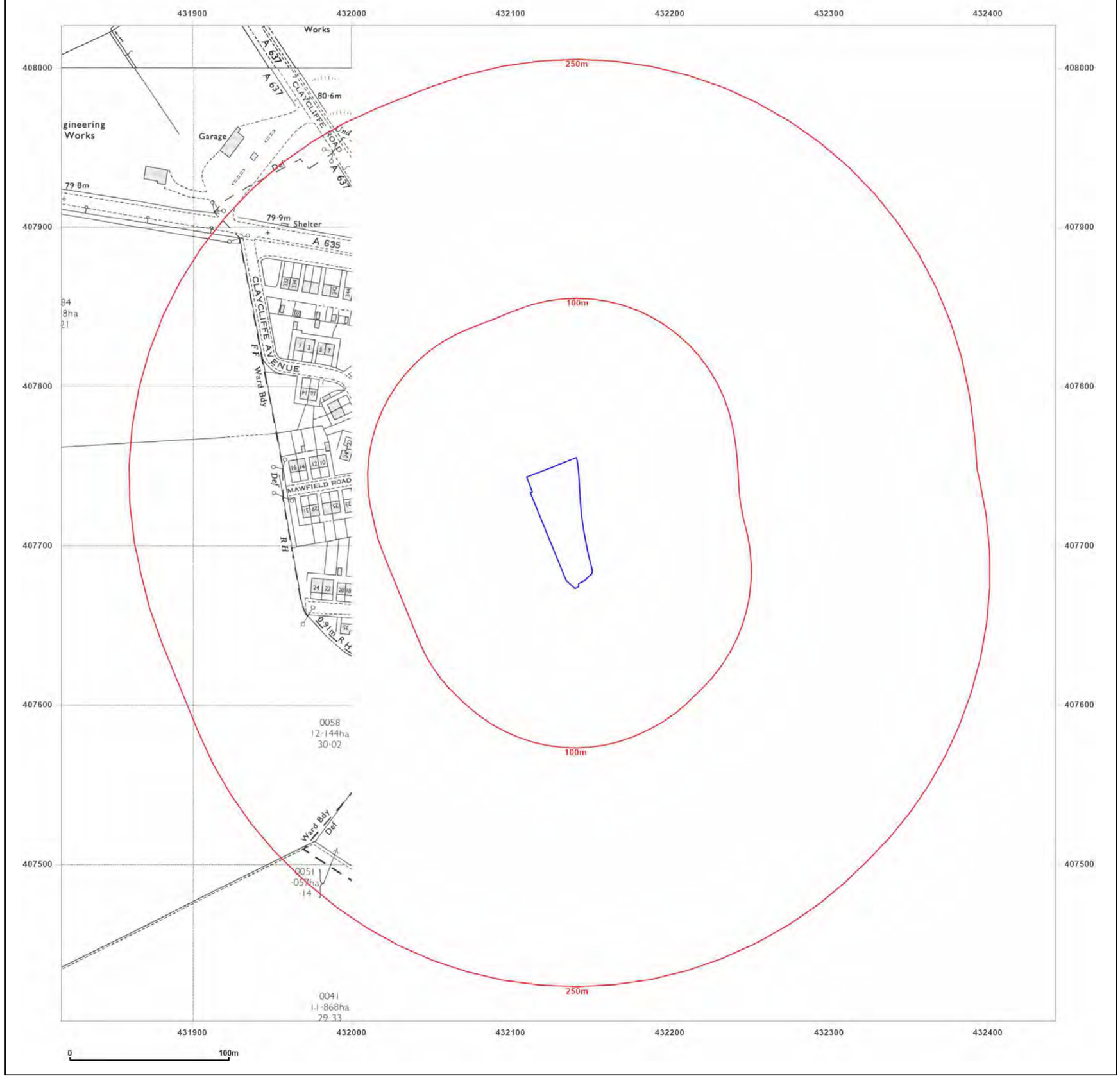
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

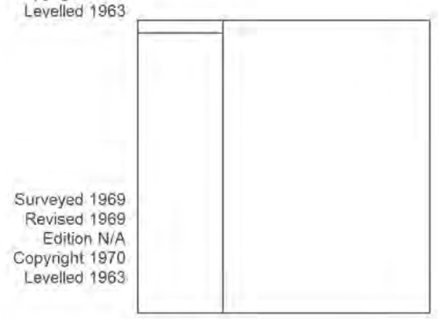
Map date: **1969-1970**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1963



Surveyed 1969
Revised 1969
Edition N/A
Copyright 1970
Levelled 1963

Groundsure INSIGHTS

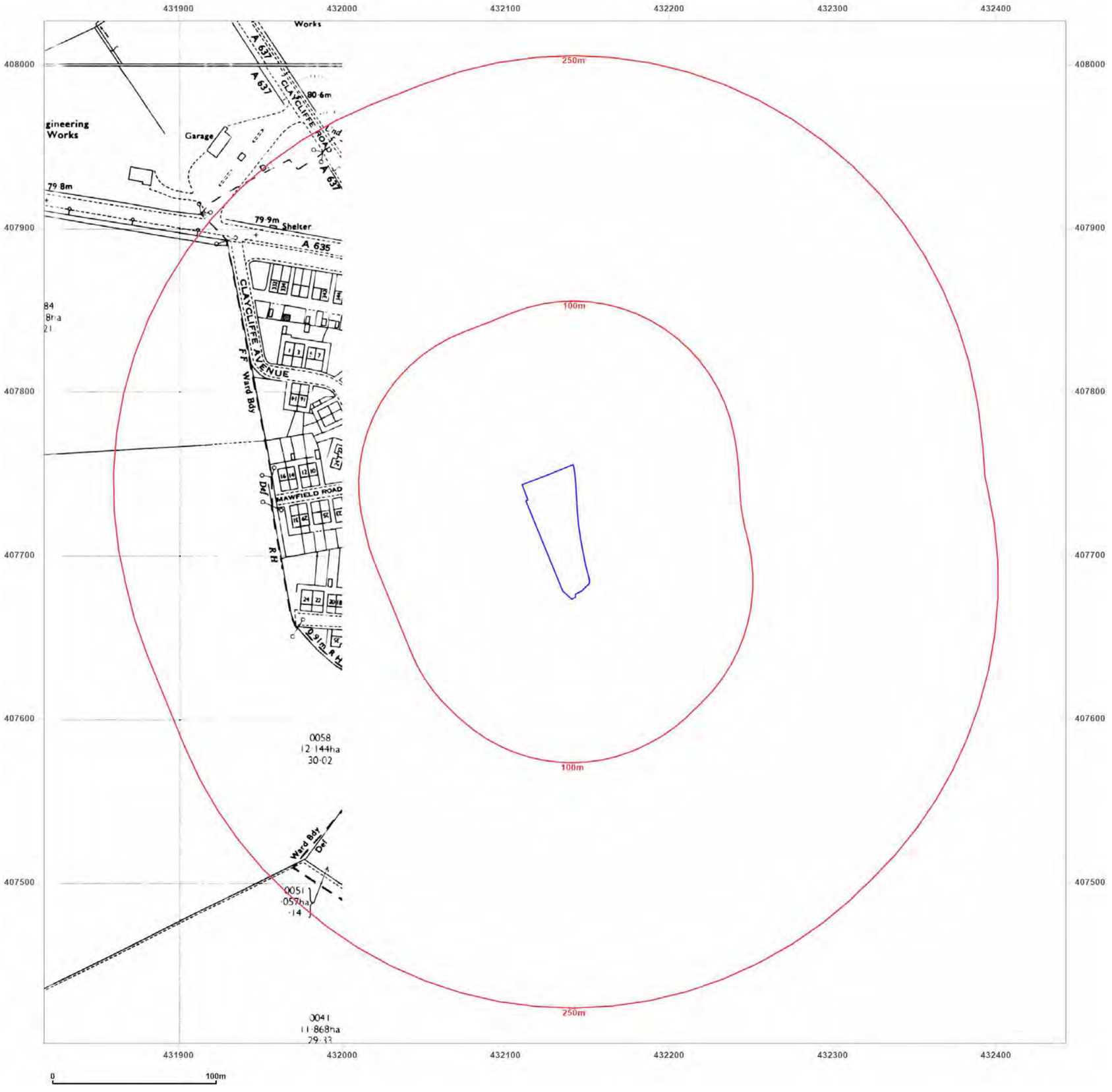
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

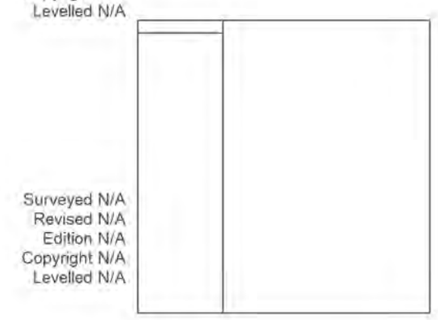
Map date: **1970-1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

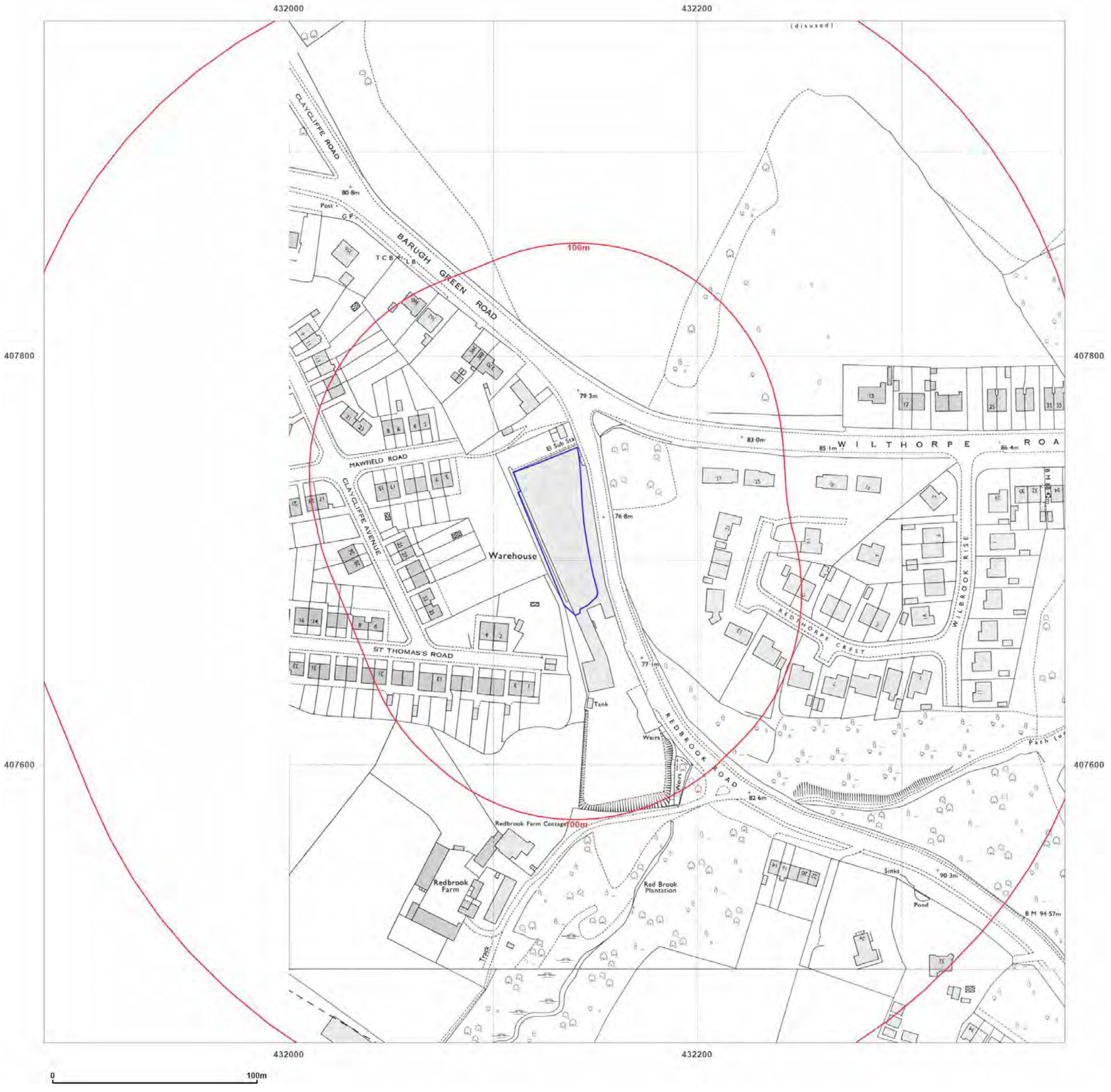
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

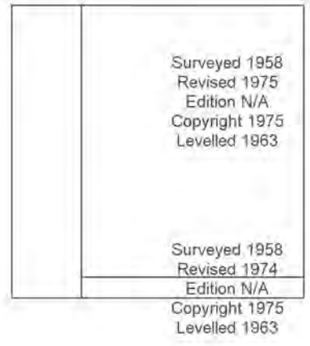
Map Name: National Grid

Map date: **1975**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S



Groundsure INSIGHTS

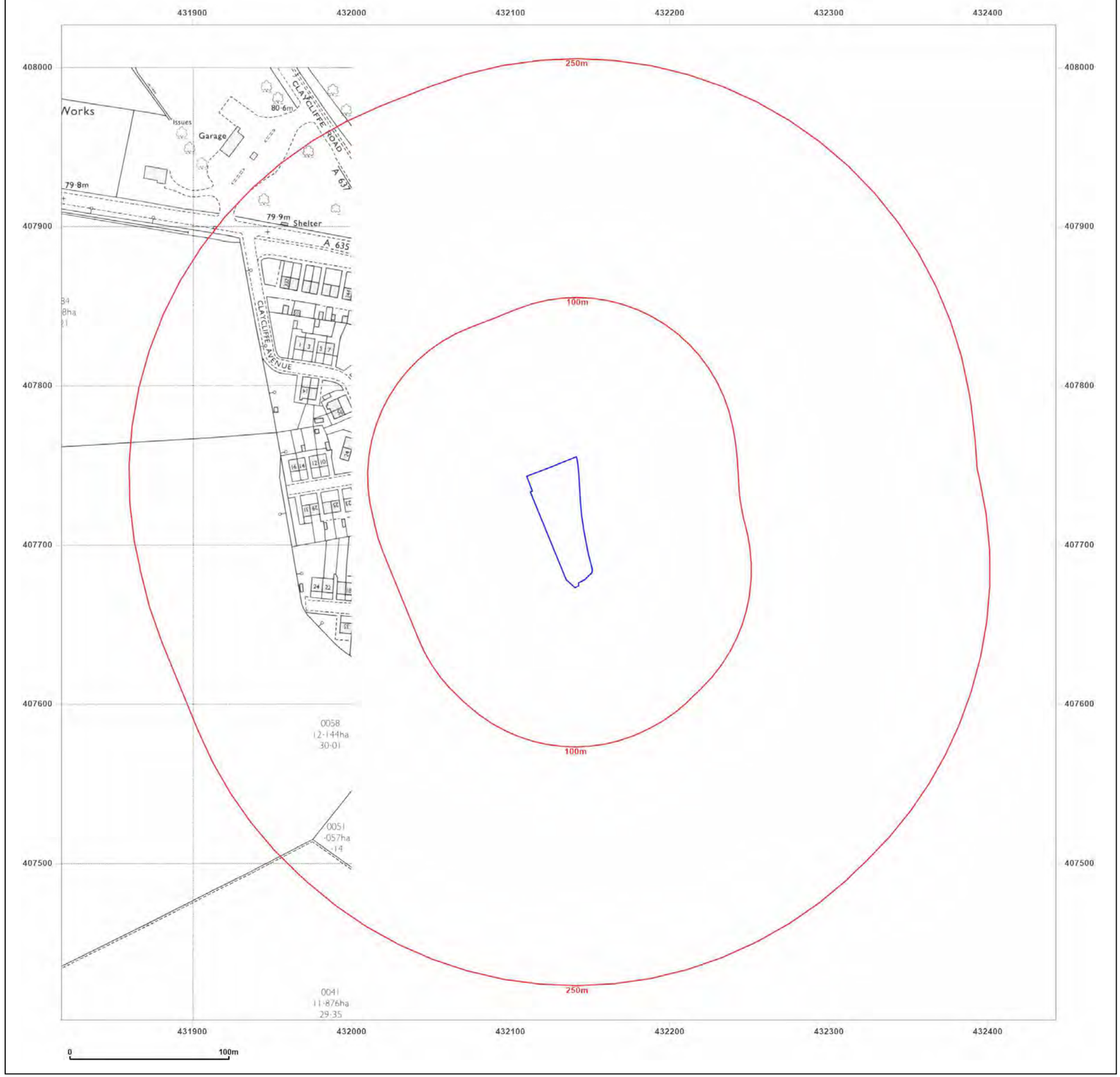
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

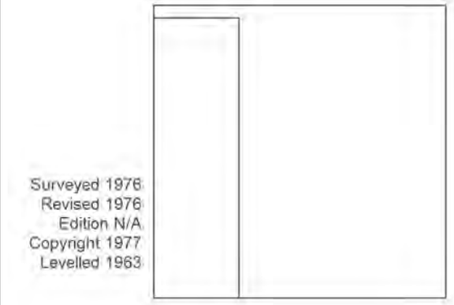
Map Name: National Grid

Map date: **1976**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Groundsure INSIGHTS

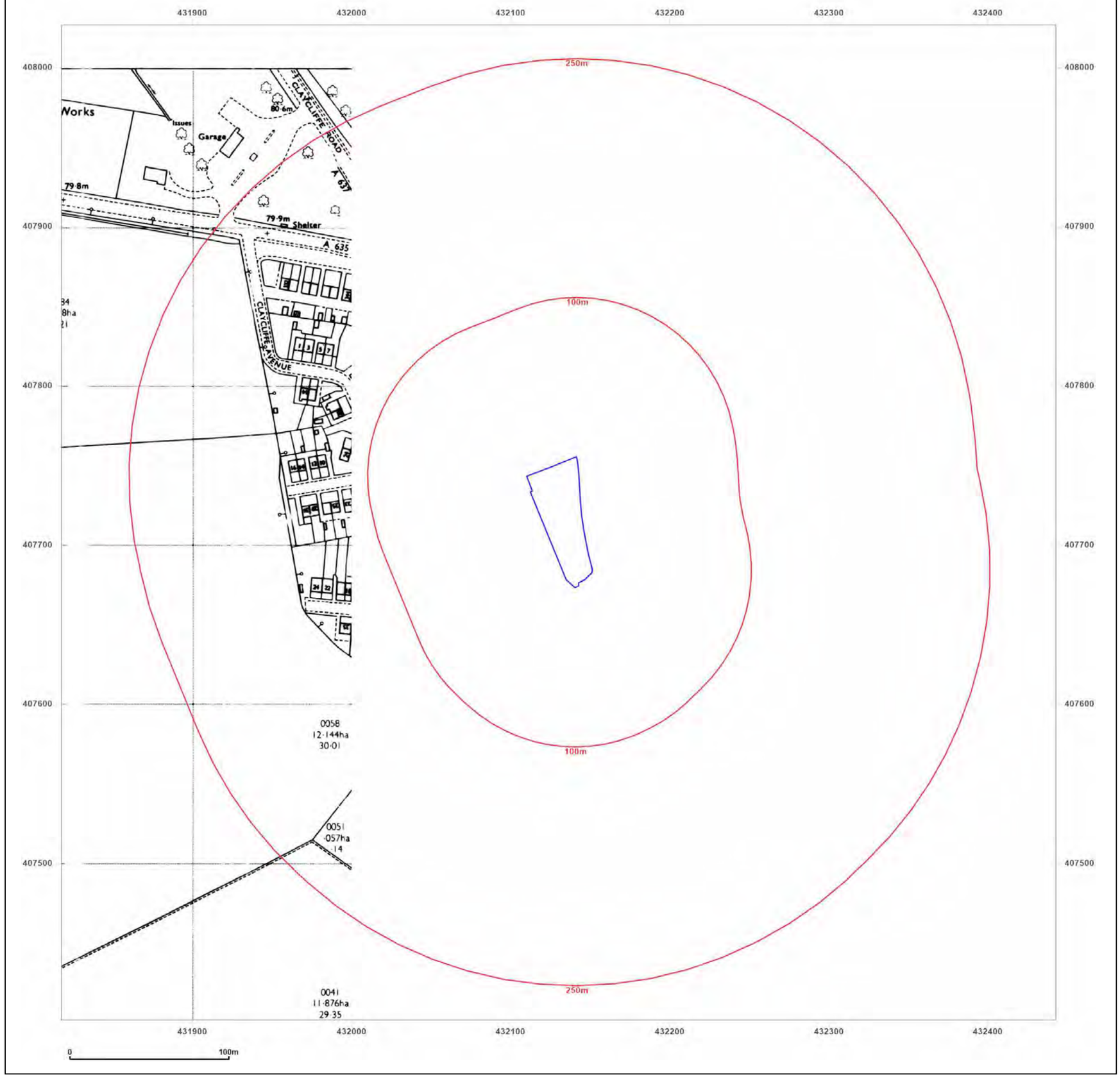
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

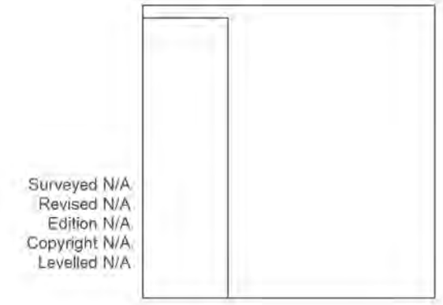
Map Name: National Grid

Map date: **1977**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Groundsure INSIGHTS

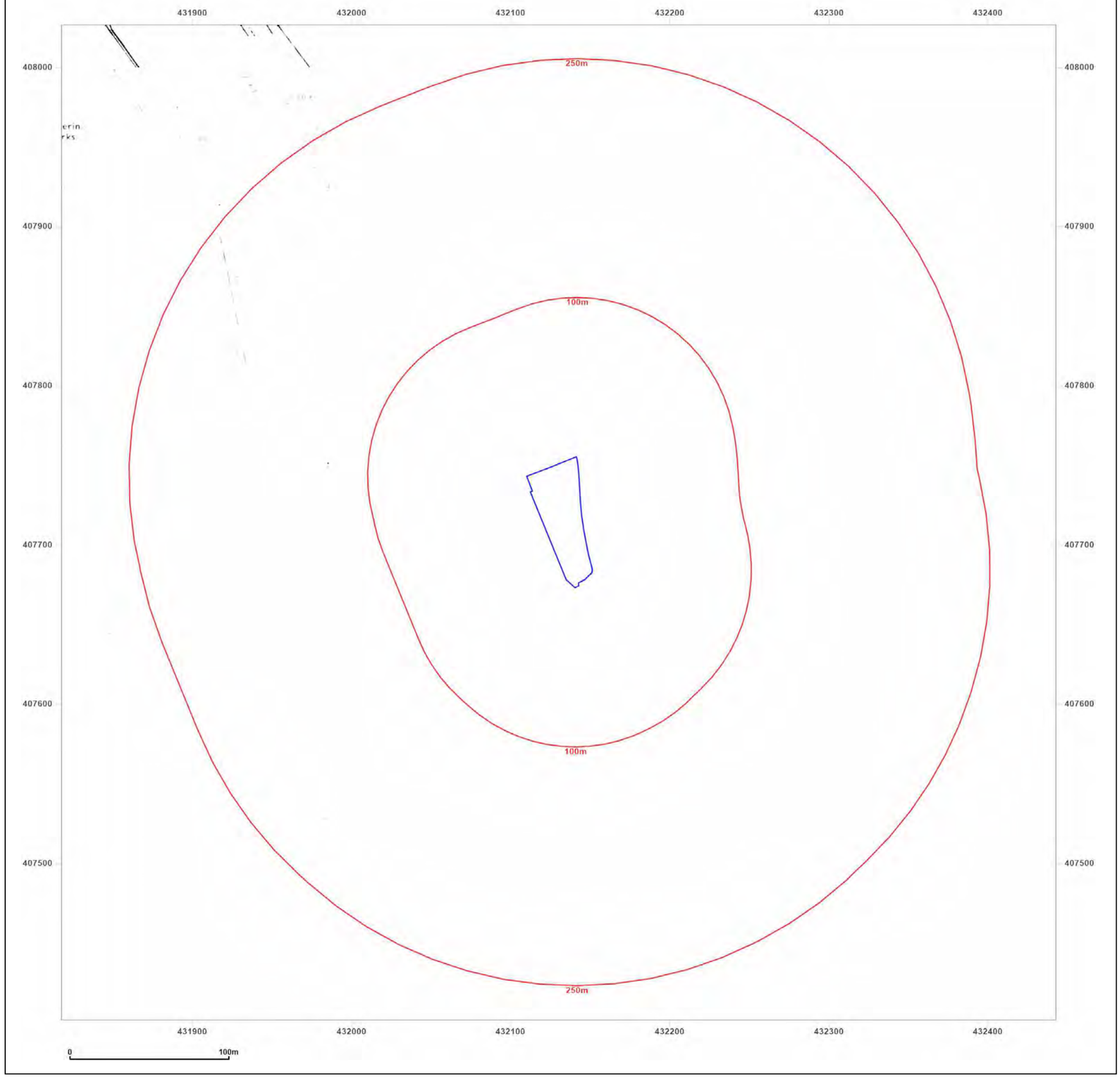
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

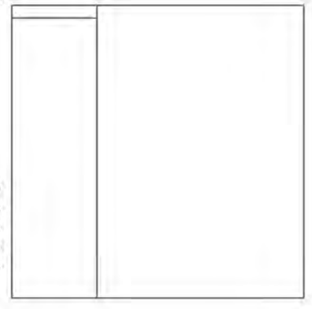
Map date: **1973-1978**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

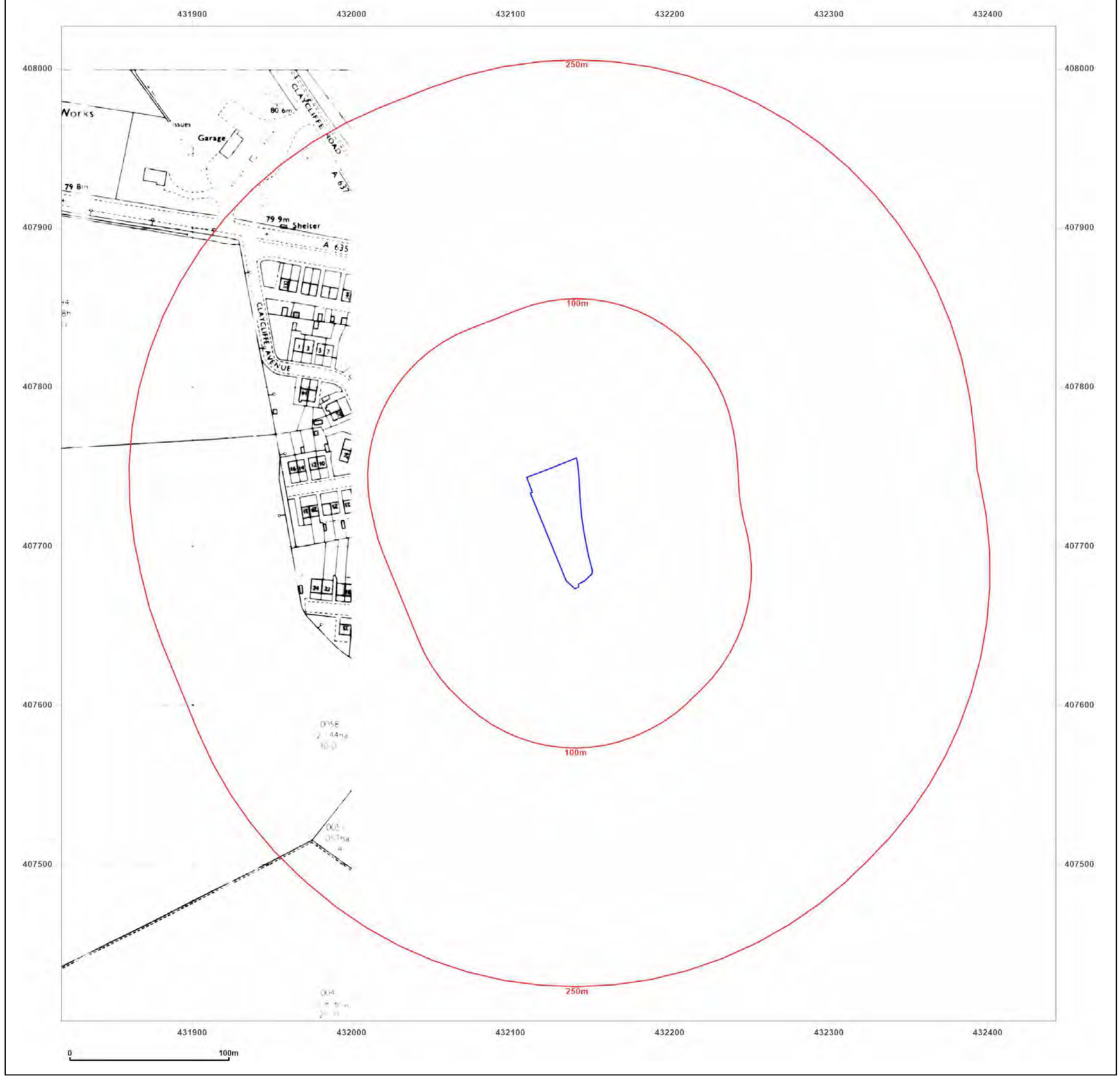
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

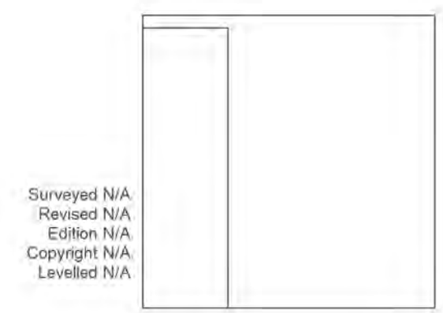
Map Name: National Grid

Map date: **1978**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Groundsure INSIGHTS

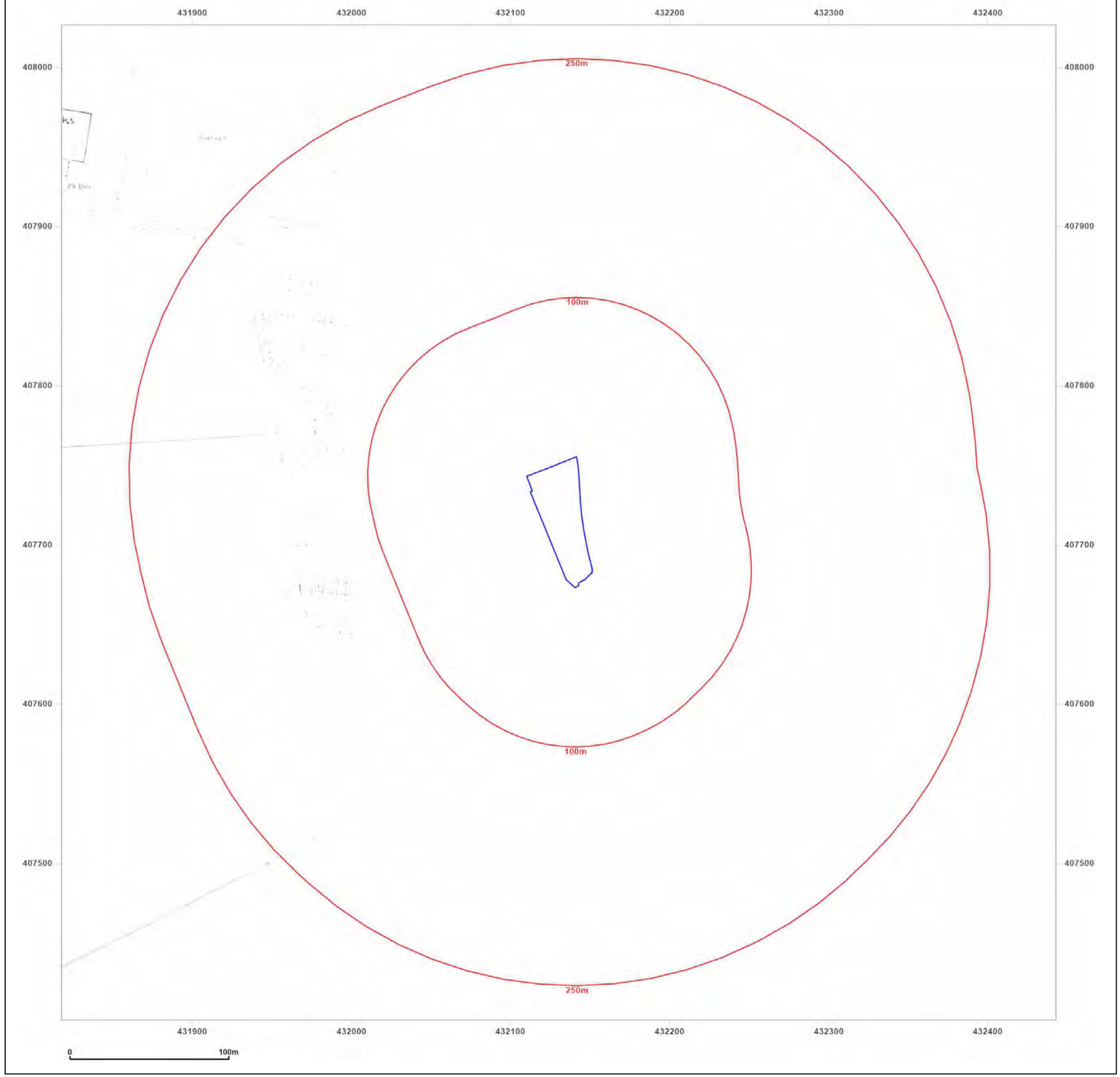
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

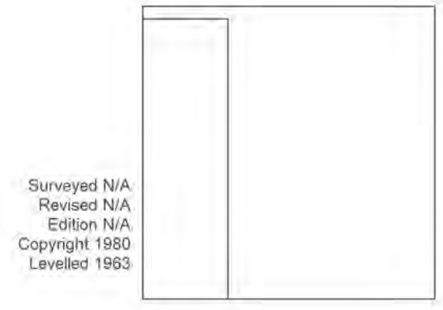
Map Name: National Grid

Map date: **1980**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



Groundsure INSIGHTS

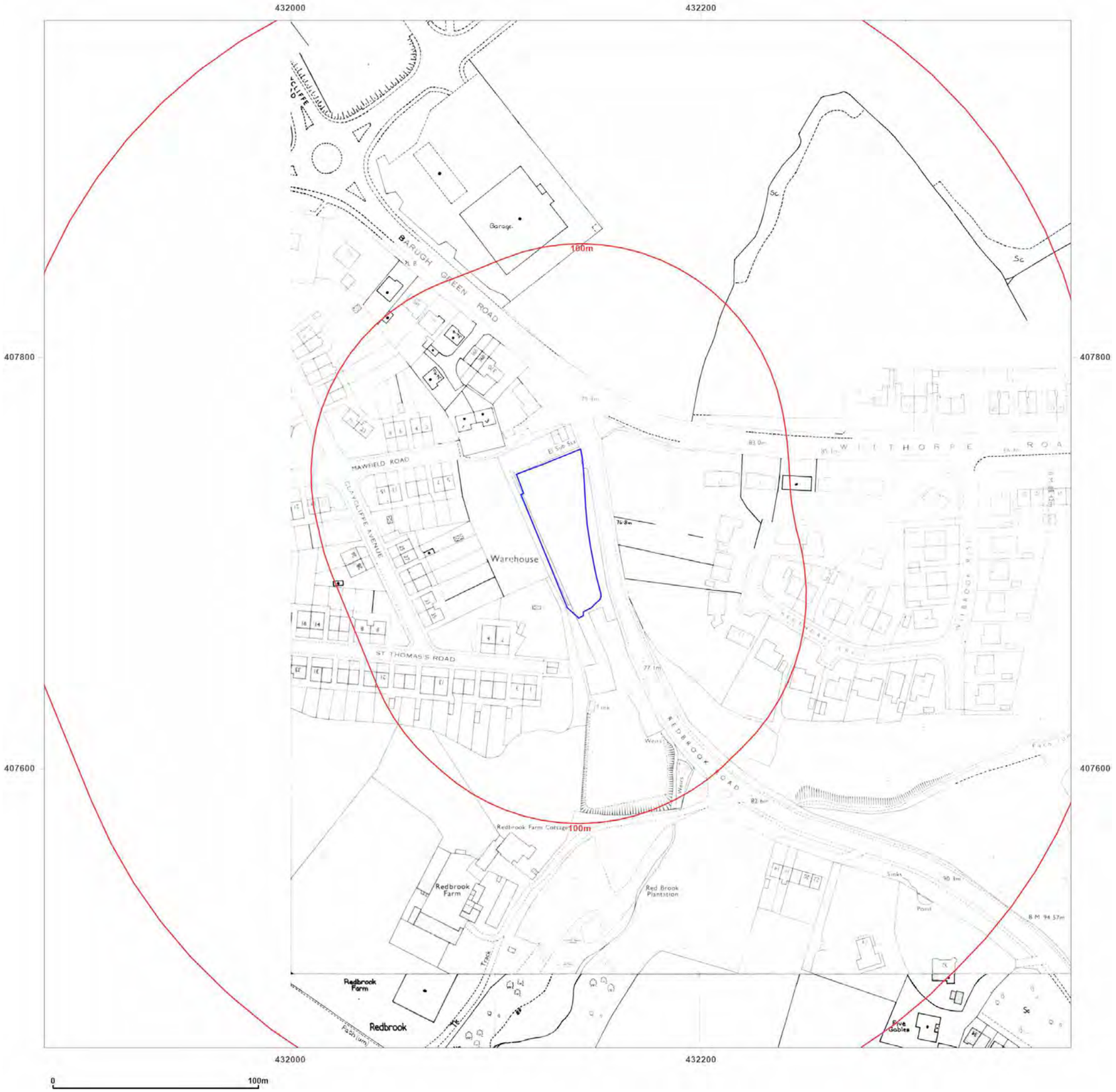
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1990-1991**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1963
Revised 1990
Edition N/A
Copyright 1990
Levelled 1963

Surveyed 1963
Revised 1991
Edition N/A
Copyright 1991
Levelled 1963

Groundsure INSIGHTS

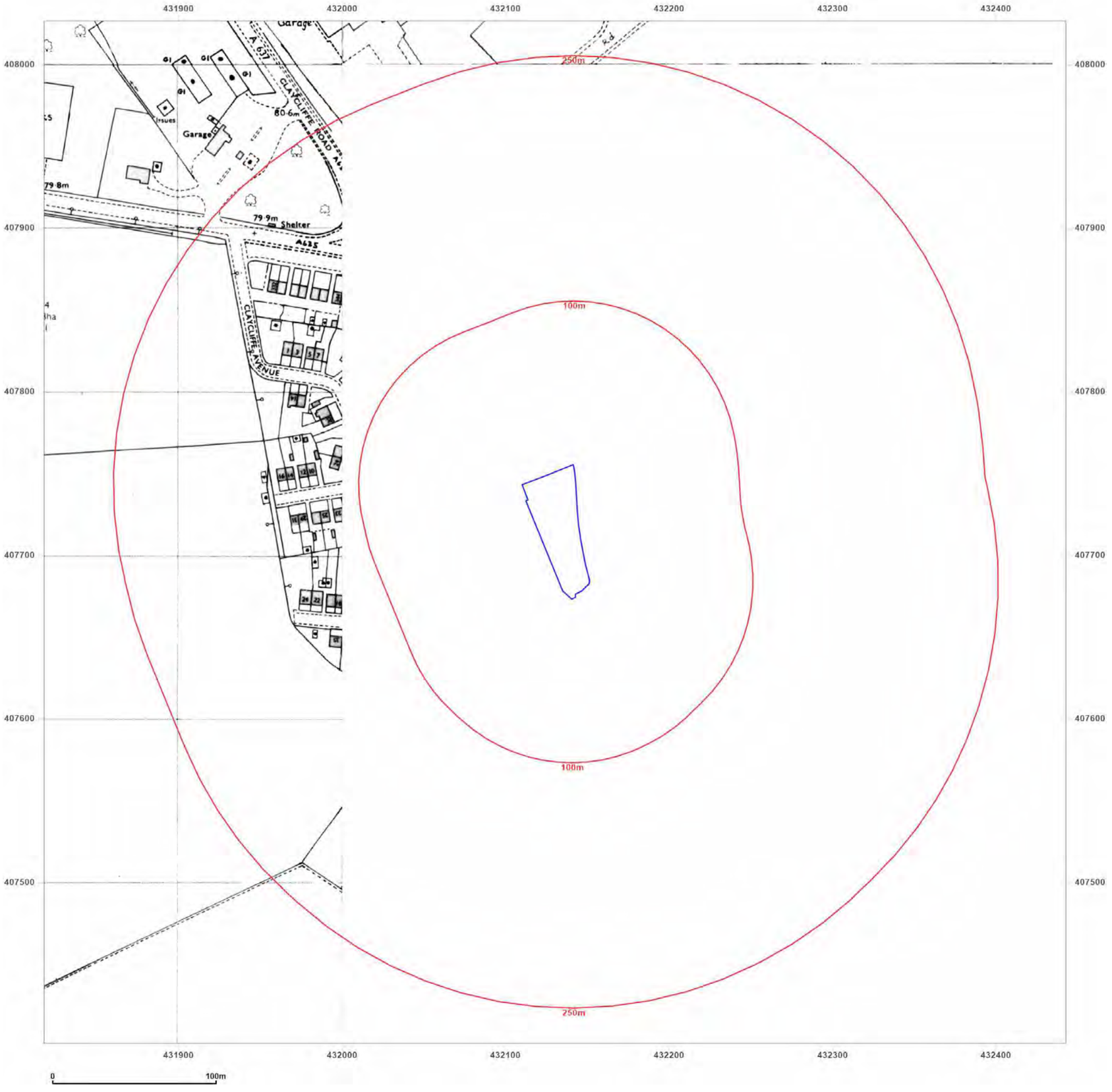
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1986-1991**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1963
Revised 1987
Edition N/A
Copyright 1987
Levelled 1963

Surveyed 1963
Revised 1986
Edition N/A
Copyright 1986
Levelled 1963

Surveyed 1991
Revised 1991
Edition N/A
Copyright 1991
Levelled N/A

Groundsure INSIGHTS

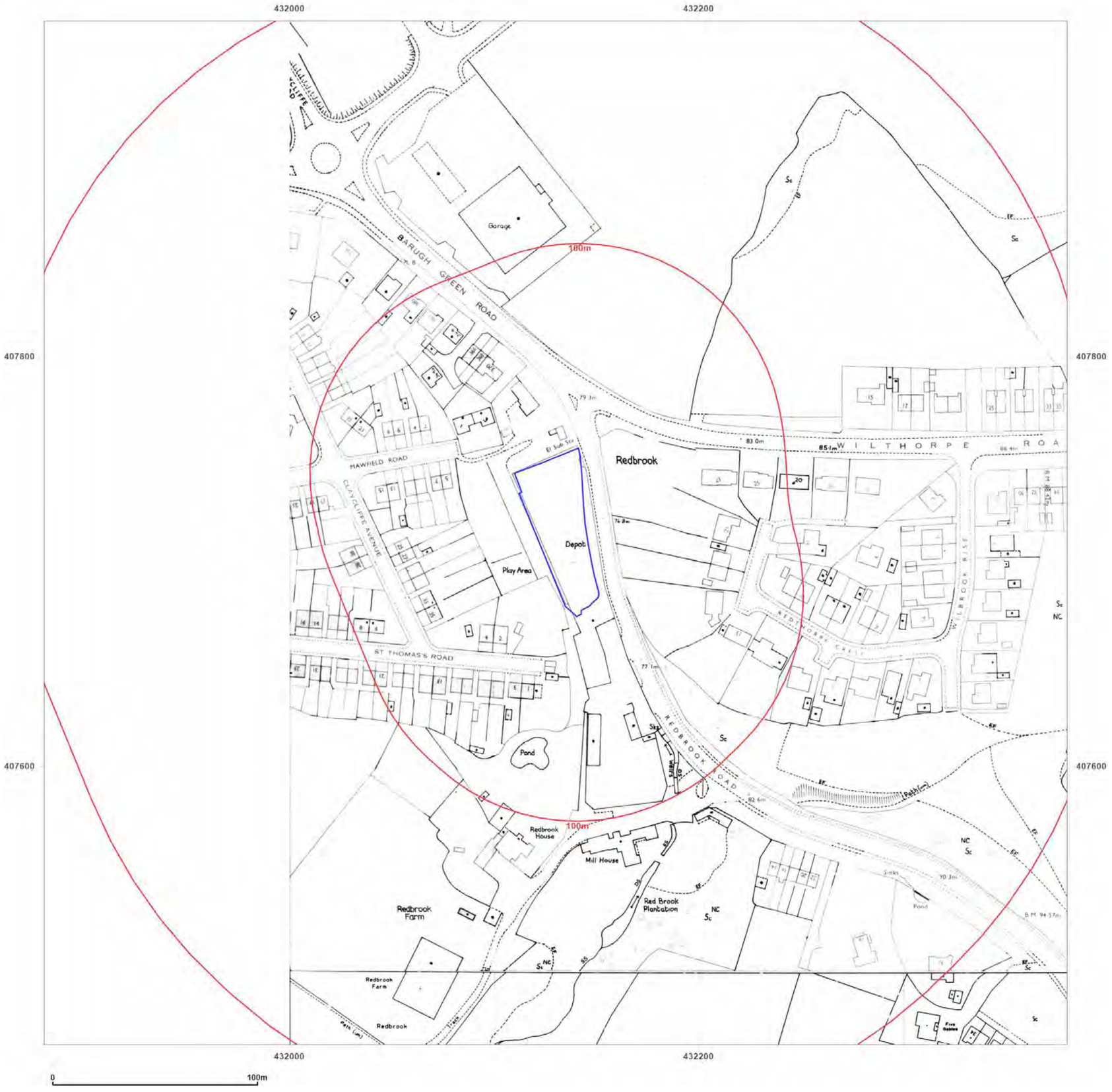
Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Powered by OS

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1991-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1991
Levelled 1963

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Groundsure INSIGHTS

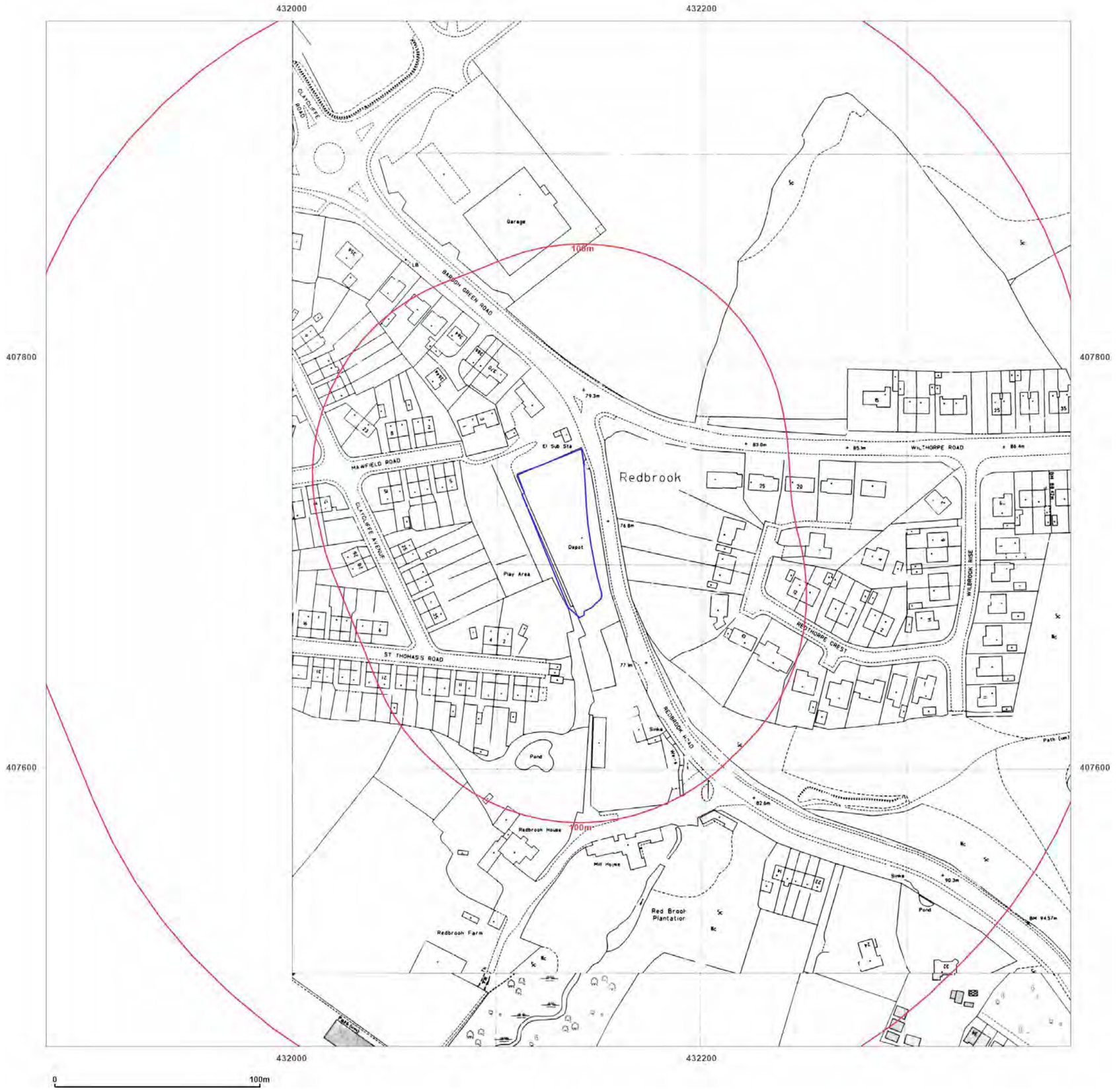
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1989-1993**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1963
Revised 1989
Edition N/A
Copyright 1989
Levelled 1963

Groundsure INSIGHTS

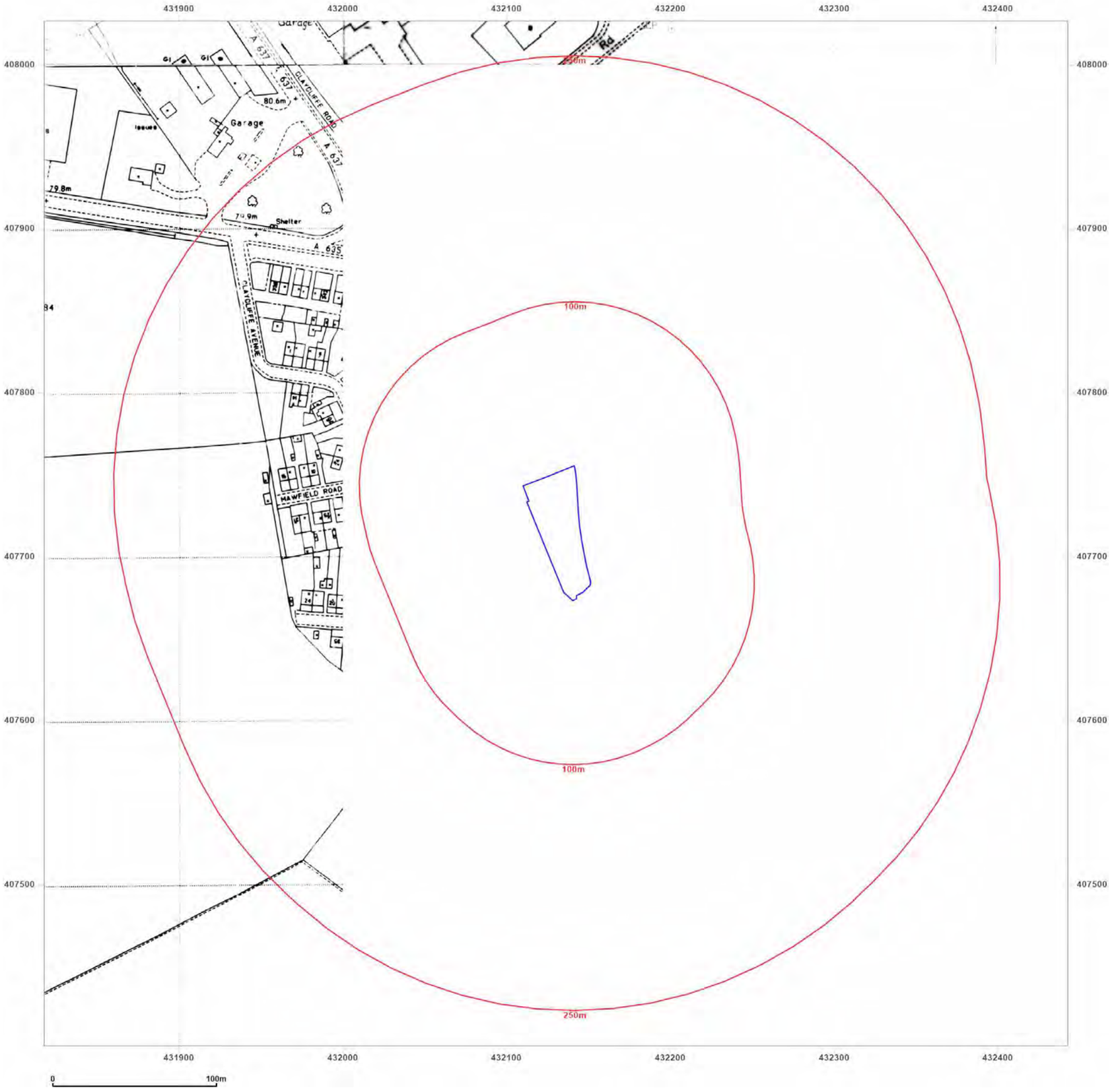
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1990-1993**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1963
Revised 1990
Edition N/A
Copyright 1990
Levelled 1963

Surveyed 1963
Revised 1991
Edition N/A
Copyright 1991
Levelled 1963

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Groundsure INSIGHTS

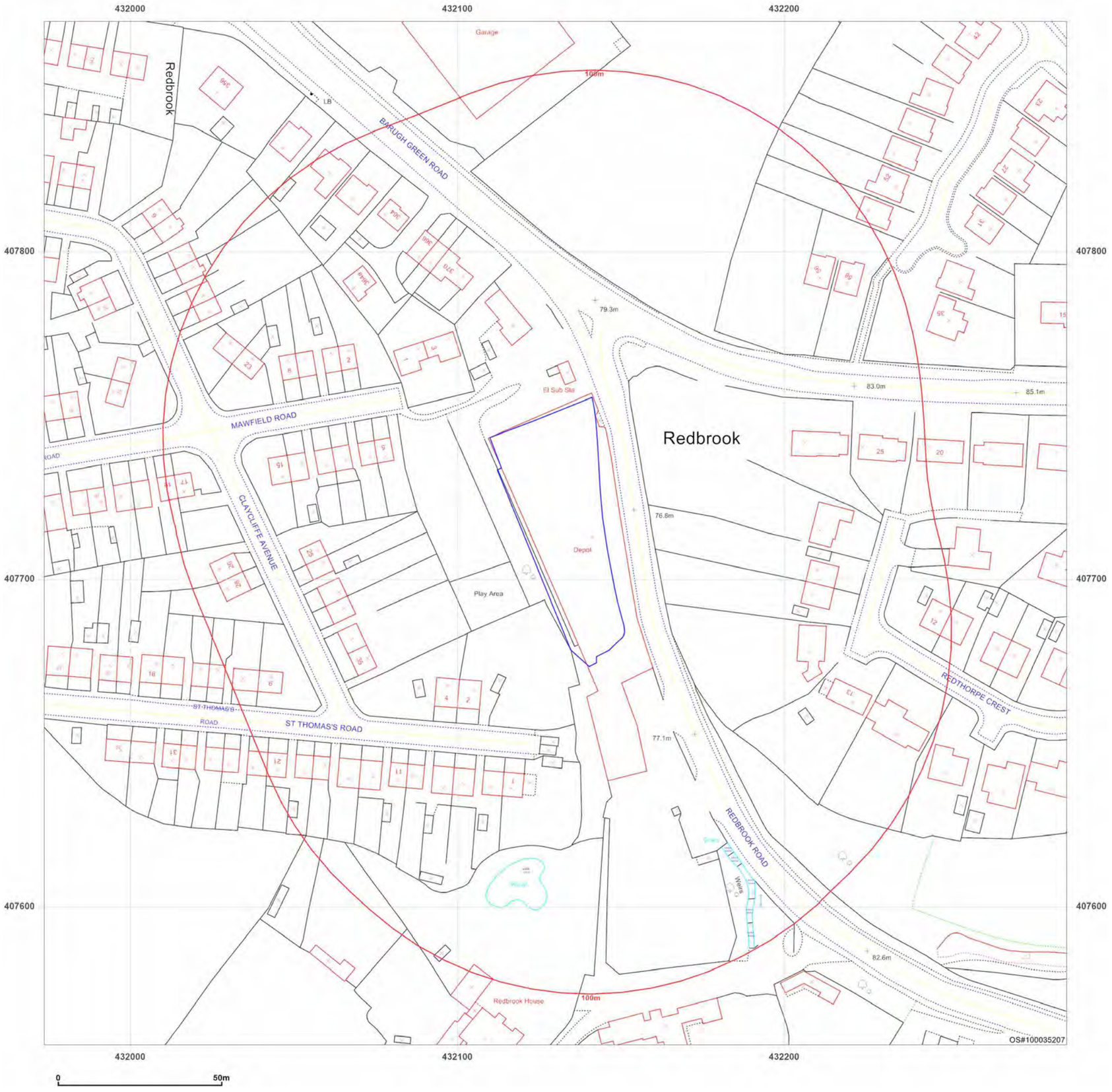
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: LandLine

Map date: **2003**

Scale: 1:1,250

Printed at: 1:1,250

N
W E
S



Groundsure INSIGHTS

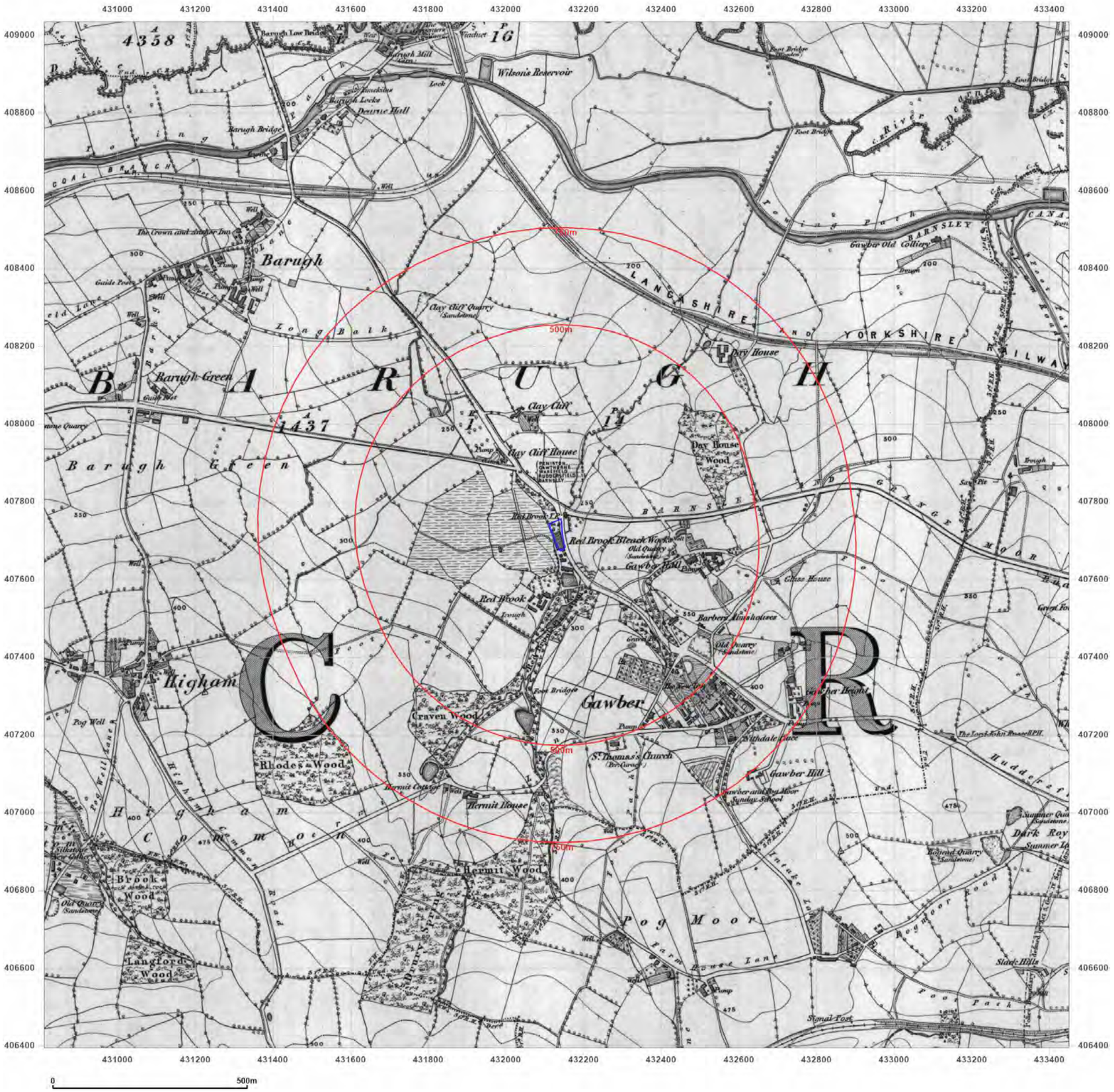
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: County Series

Map date: **1850**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1851
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

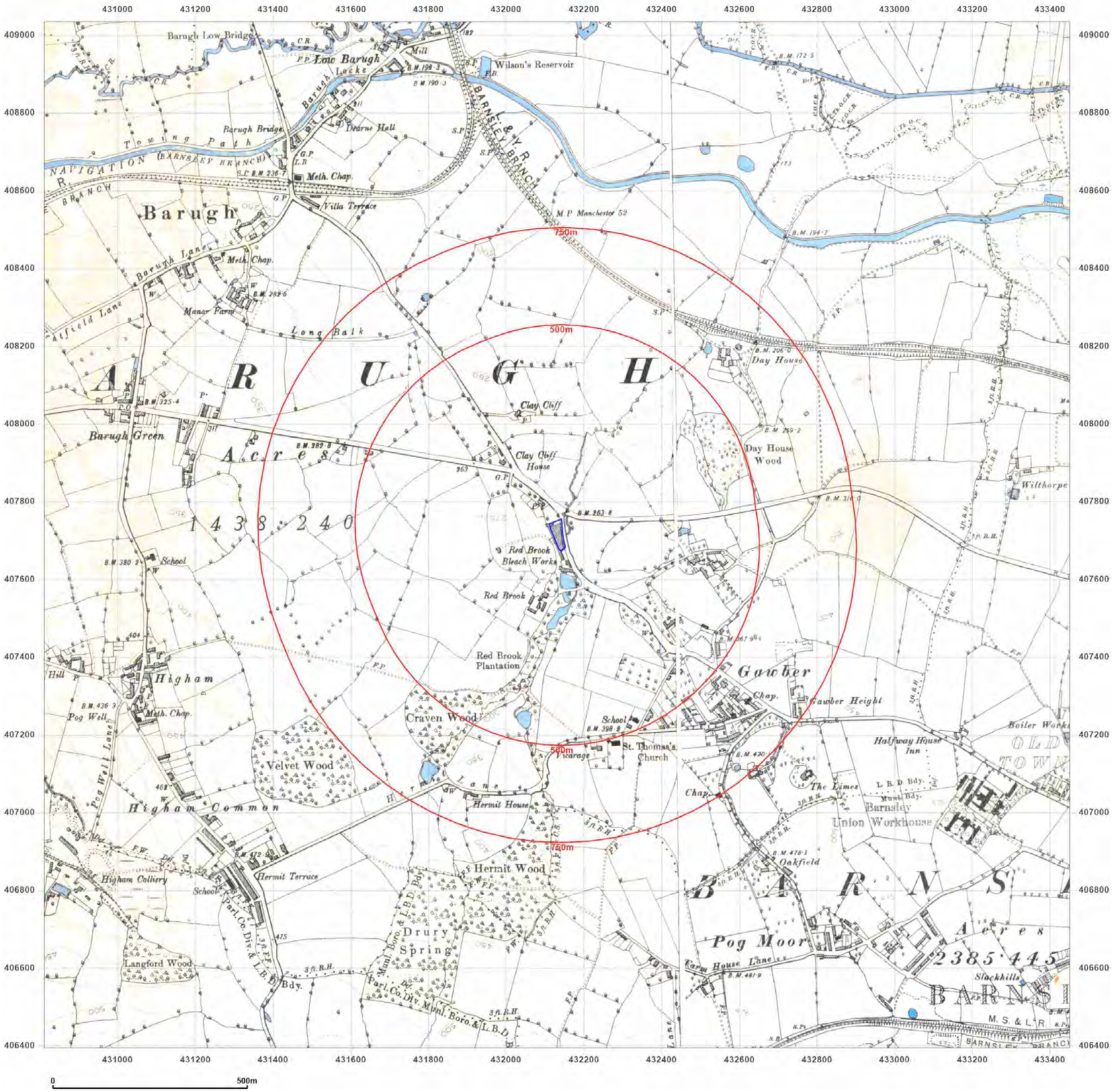
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

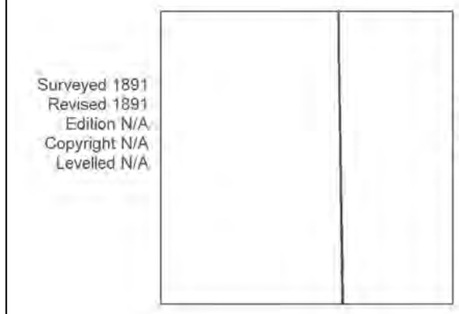
Map Name: County Series

Map date: **1890-1891**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Groundsure INSIGHTS

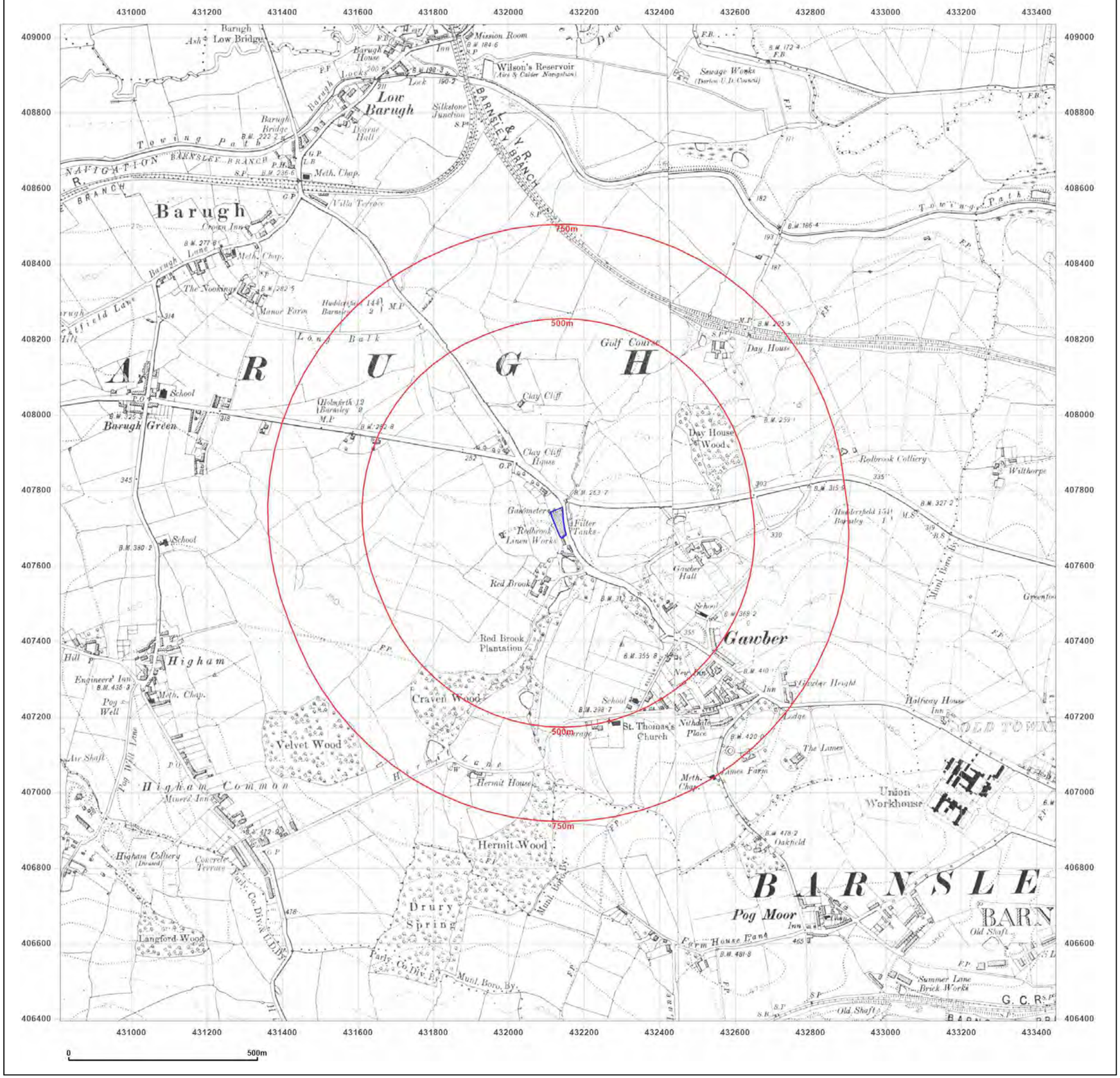
Powered by OS

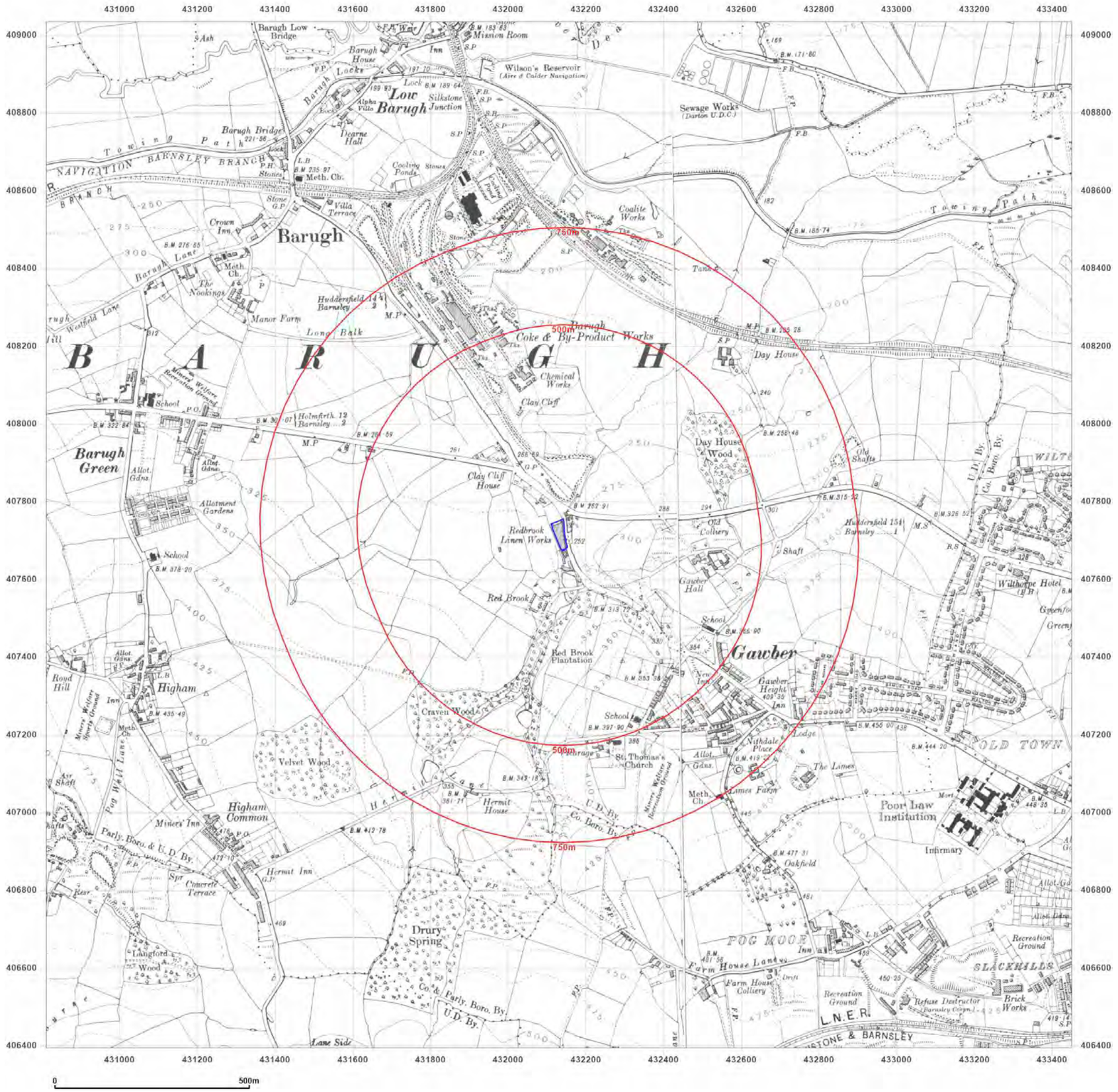
Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf


431000
431200
431400
431600
431800
432000
432200
432400
432600
432800
433000
433200
433400
409000
408800
408600
408400
408200
408000
407800
407600
407400
407200
407000
406800
406600
406400
Barugh
Low Barugh
Barugh Green
Higham
Gawber
Hermit Wood
Velvet Wood
Craven Wood
Drury Spring
Langford Wood
Pog Moor
Day House Wood
Golf Course
Clay Cliff
Wilson's Reservoir
Redbrook Colliery
Union Workhouse
St. Thomas's Church
Redbrook Linen Works
Higham Common
Barugh Bridge
Towing Path
Silkstone Junction
Mission Room
Sewage Works
Meth. Chap.
Crown Inn
Manor Farm
The Nookings
Day House
Clay Cliff House
Red Brook Plantation
Red Brook
Gawber Hall
Nuthalle Place
The Lanes
Lanes Farm
Oakfield
Old Shaft
Summer Lane Brick Works
Farm House Fand
Pog Well
Engineers' Inn
Mixed Inn
Concrete Terrace
Air Shaft
Filter Tanks
Gasometer
Barugh Lane
Pog Well Lane
Hermit House Lane
Clay Cliff Lane
Barugh Green Lane
Long Balk
Barugh Ash
Low Bridge
Barugh House
Inn
Locks
Towing Path
Barugh Bridge
Thorne Hall
Villa Terrace
Meth. Chap.
Manor Farm
The Nookings
Golf Course
Day House
Clay Cliff
Clay Cliff House
Redbrook Linen Works
Filter Tanks
Gasometer
Red Brook
Gawber Hall
Red Brook Plantation
Craven Wood
Velvet Wood
Hermit House
Hermit Wood
Drury Spring
Langford Wood
Pog Moor
Farm House Fand
Old Shaft
Summer Lane Brick Works
Union Workhouse
Oakfield
The Lanes
Lanes Farm
Nuthalle Place
St. Thomas's Church
Redbrook Colliery
Wilthorpe
Sewage Works
Wilson's Reservoir
Silkstone Junction
Mission Room
Inn



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

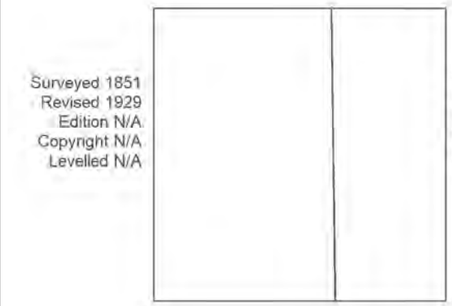
Map Name: County Series

Map date: **1929**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Groundsure INSIGHTS

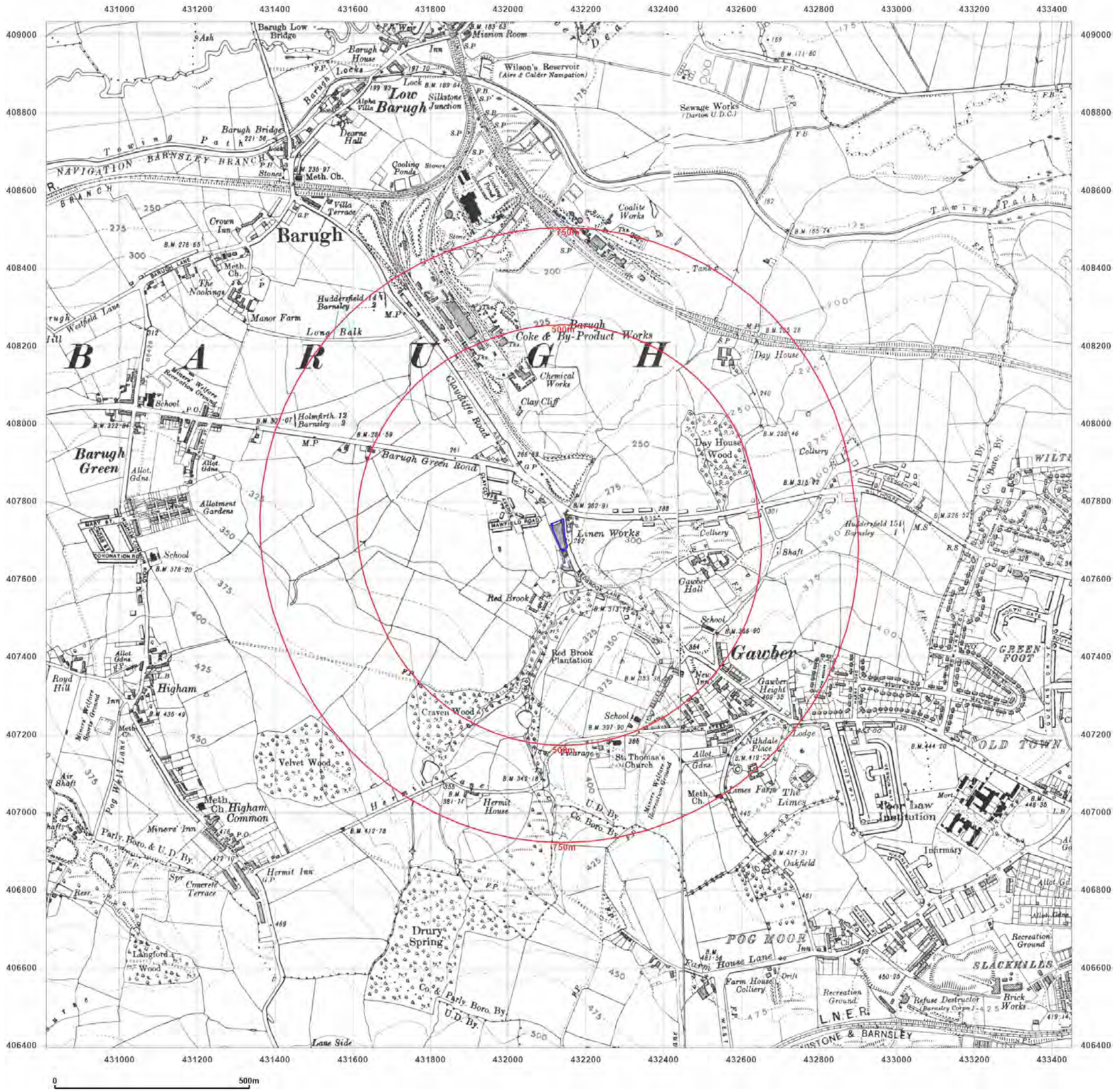
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

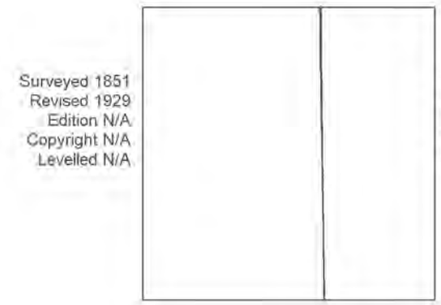
Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Groundsure INSIGHTS

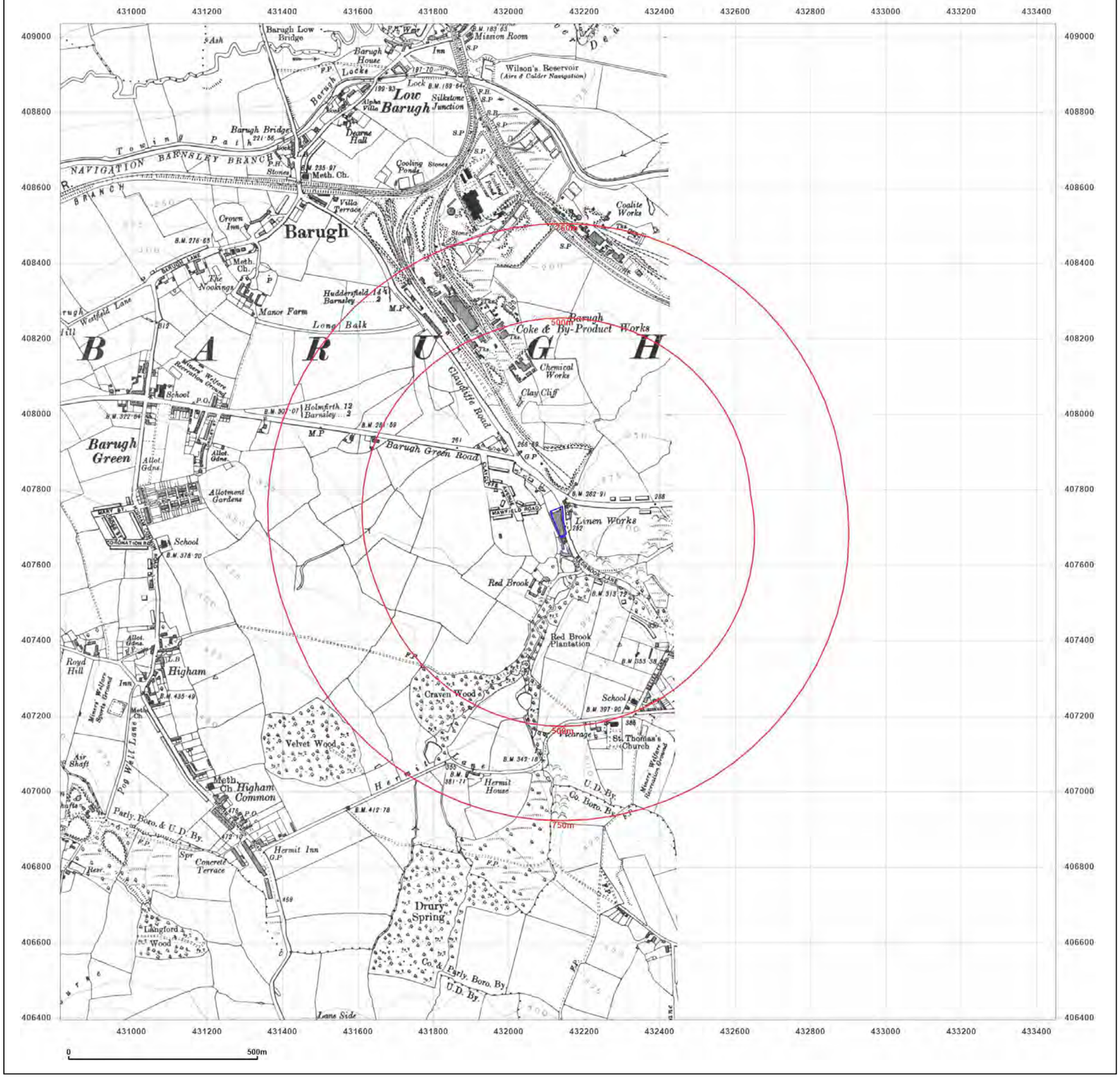
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

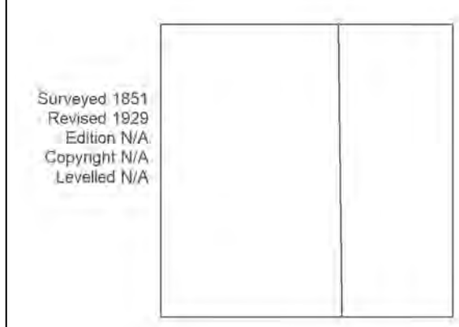
Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Groundsure INSIGHTS

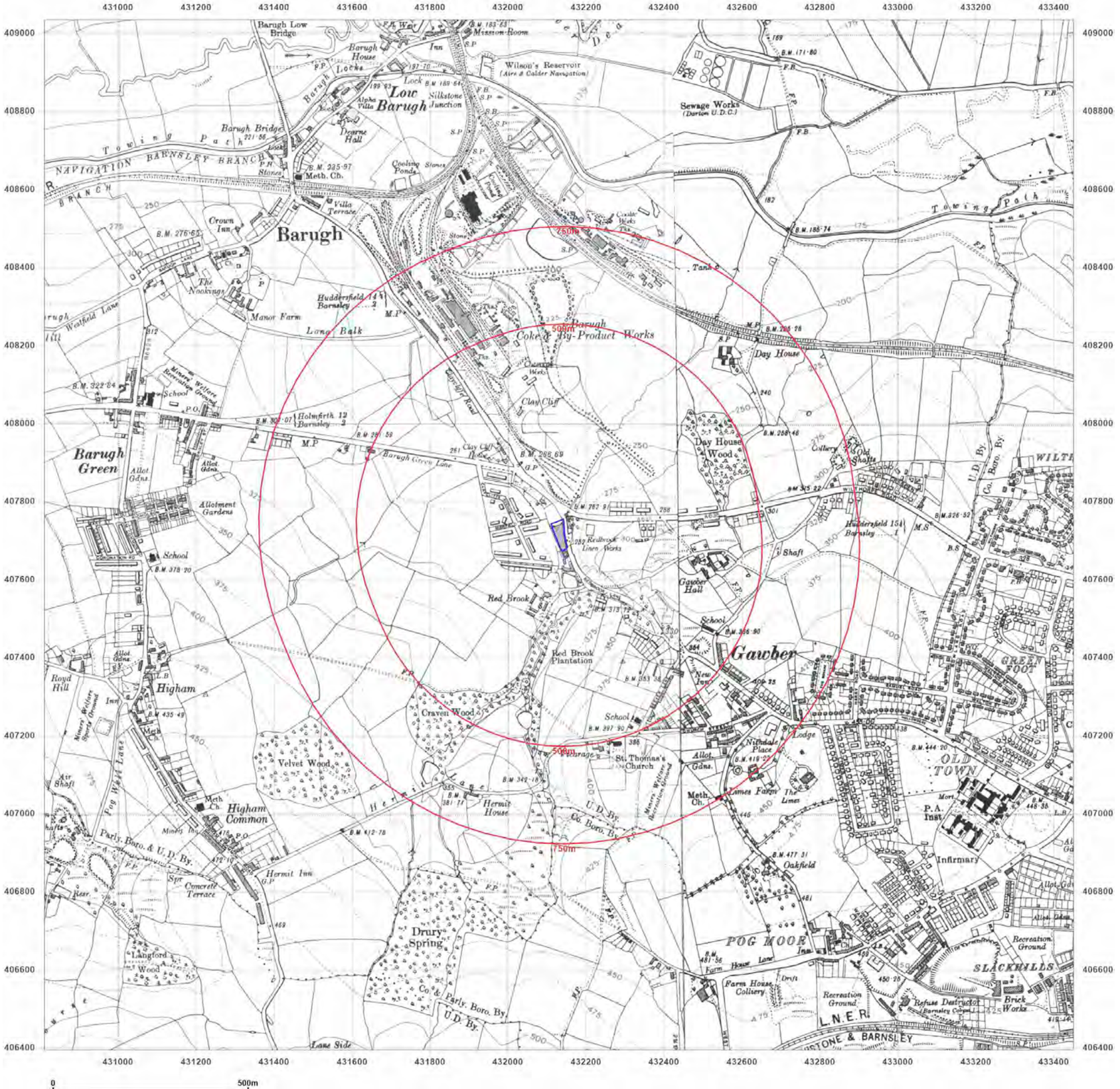
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

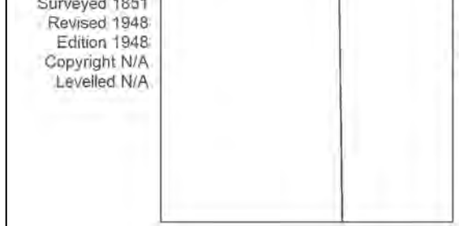
Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S



Groundsure INSIGHTS

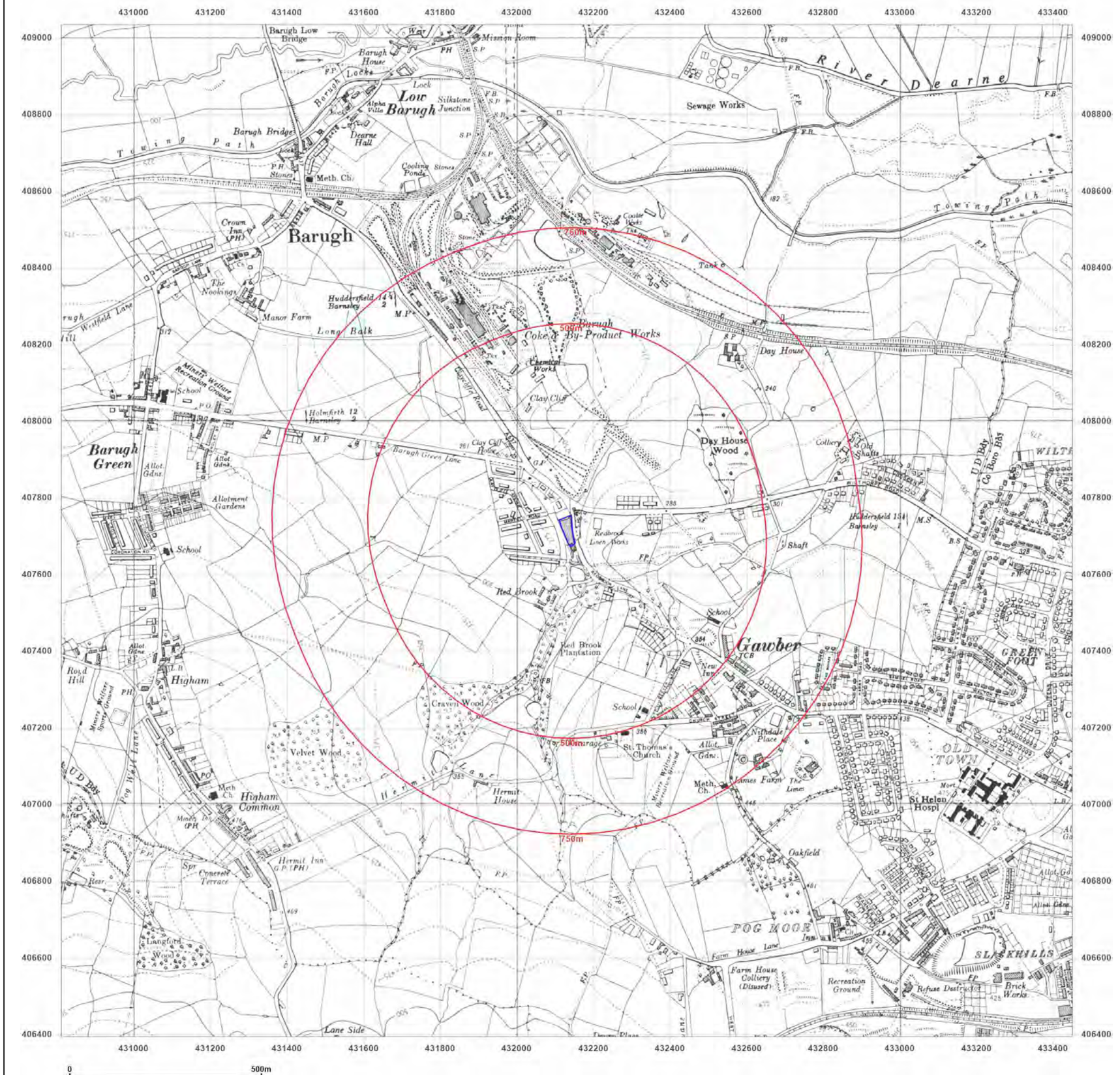
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: Provisional

Map date: **1956**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed N/A
Revised 1955
Edition N/A
Copyright 1956
Levelled N/A

Groundsure INSIGHTS

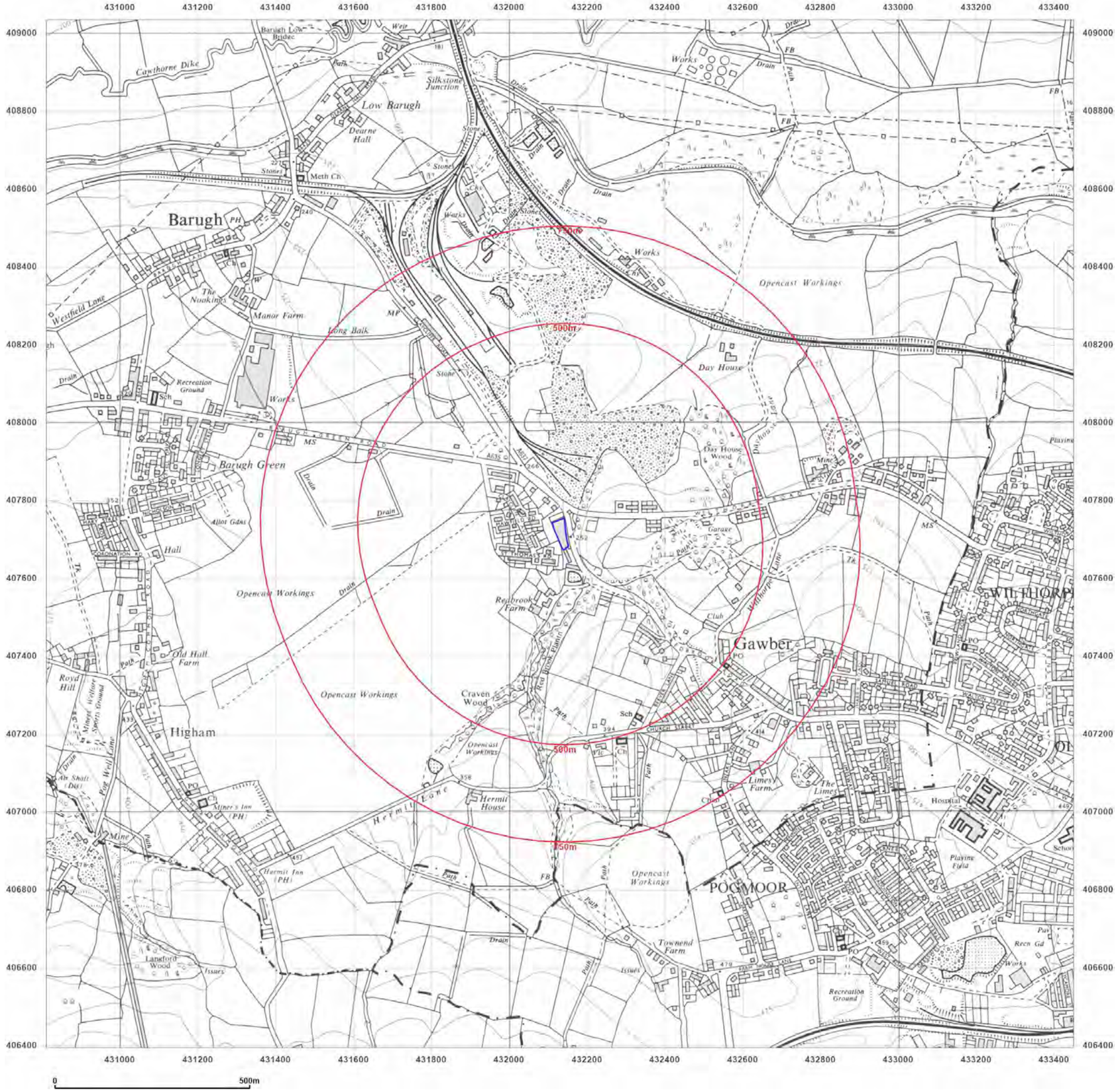
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: Provisional

Map date: **1966**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

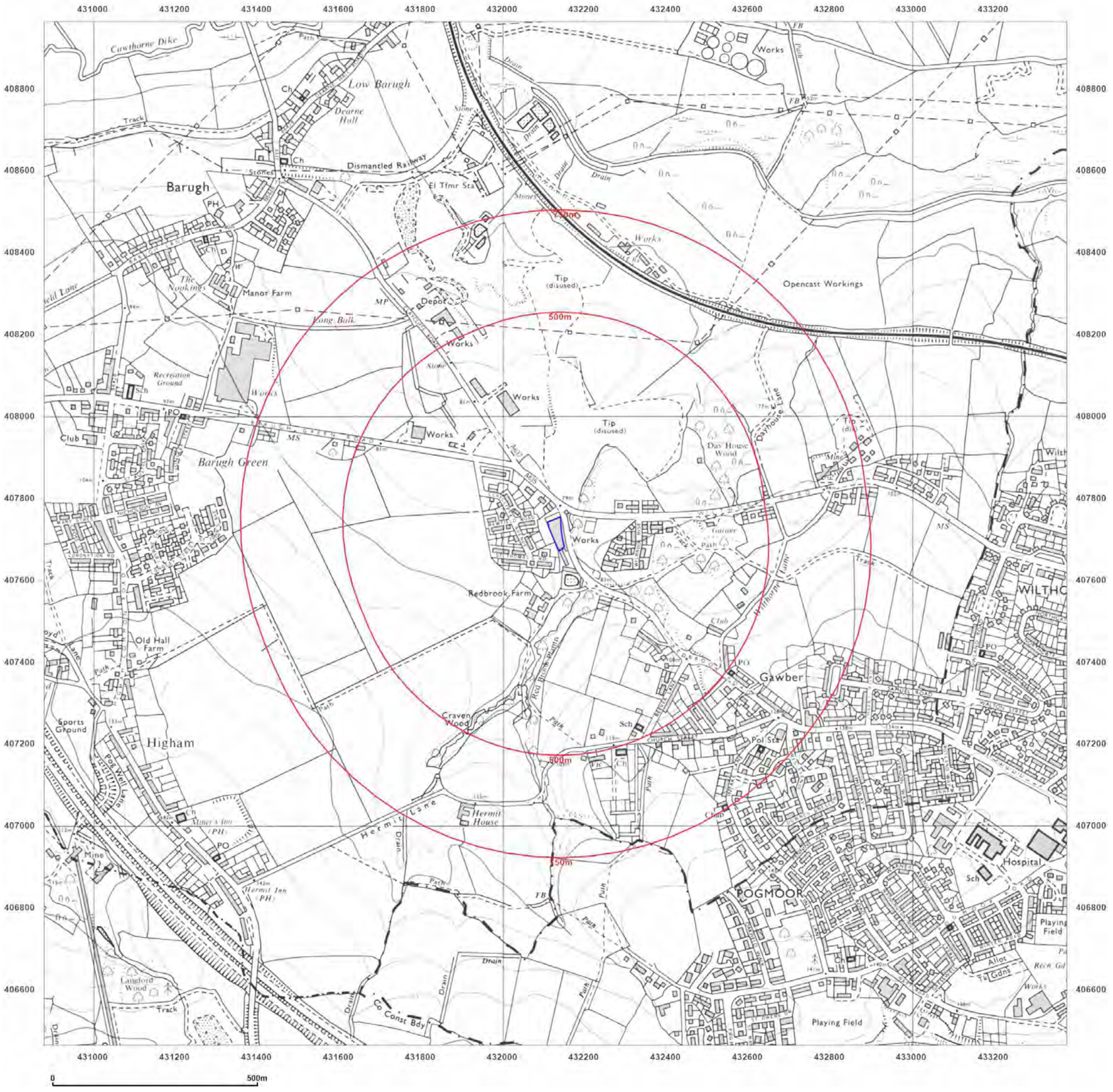
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1973**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1973
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

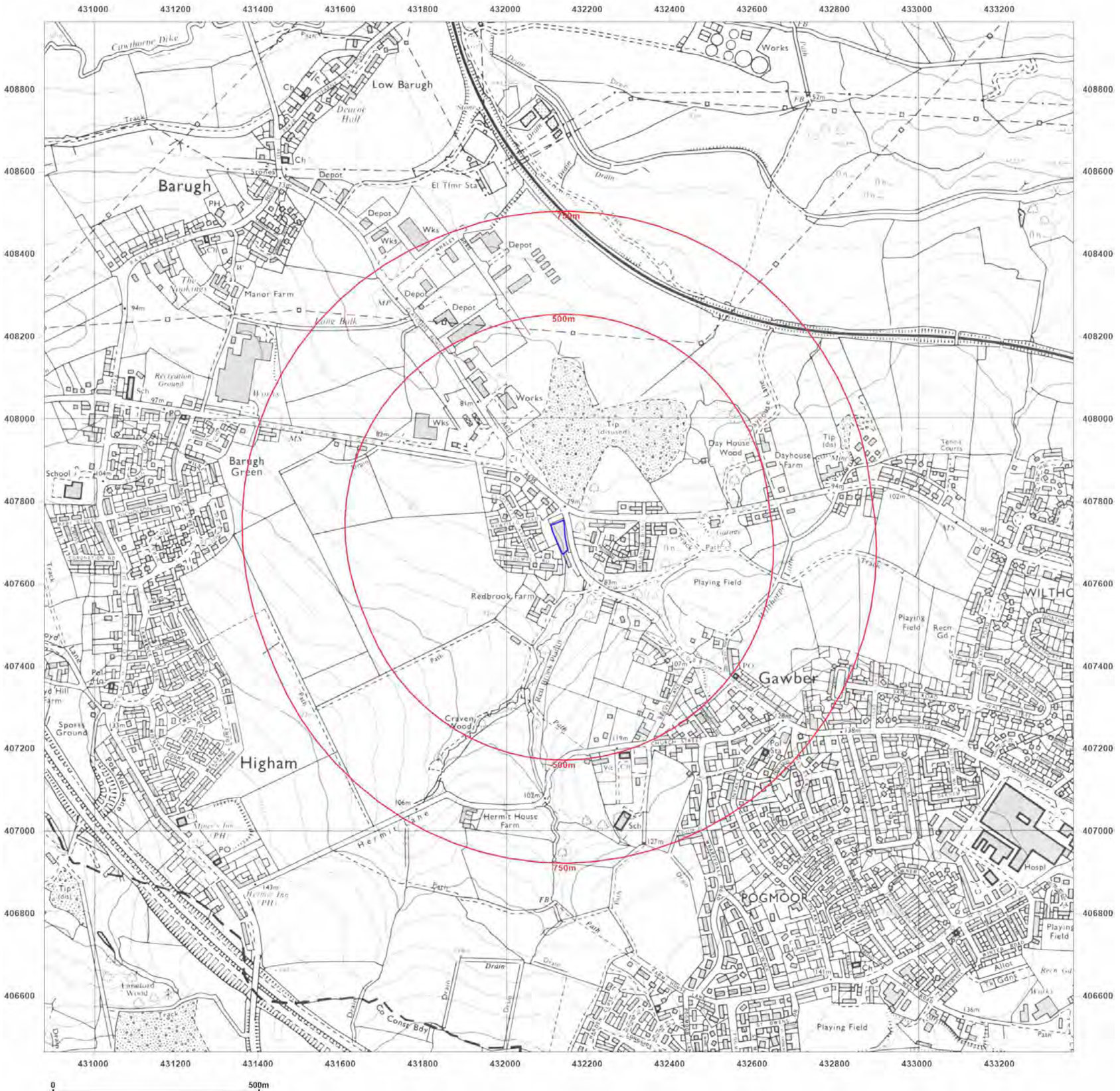
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1982**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1982
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

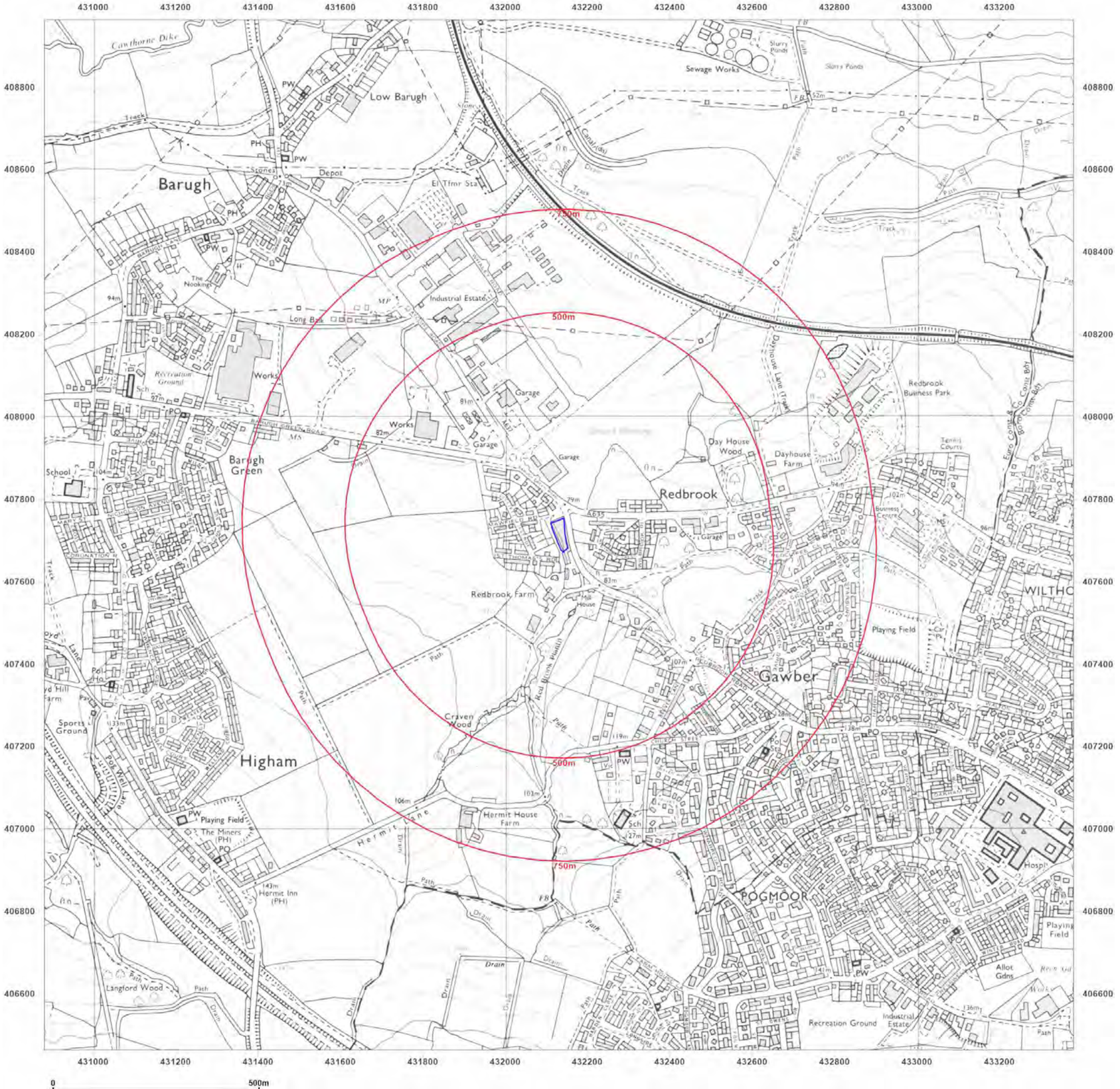
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **1993**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1992
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

Groundsure INSIGHTS

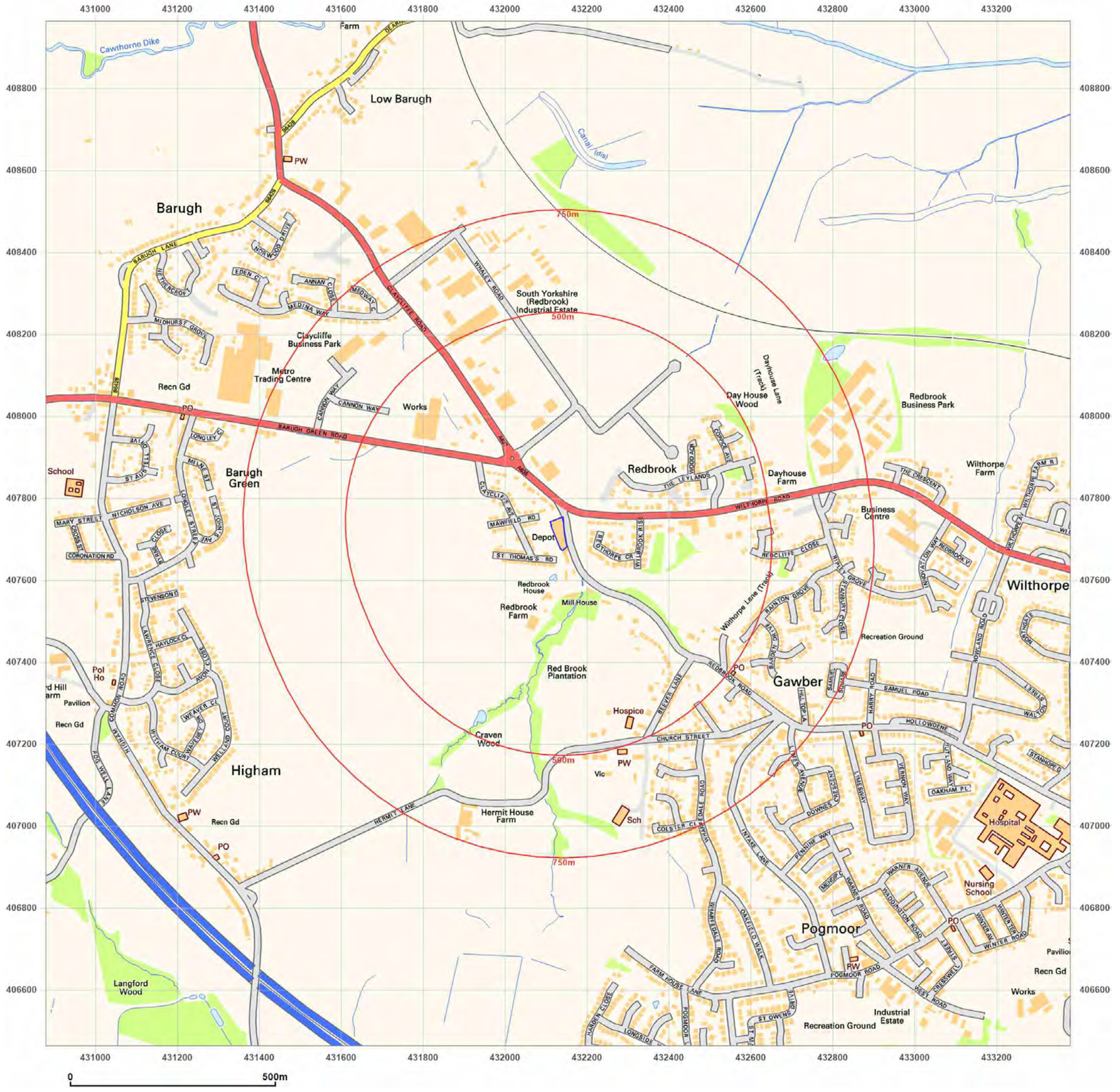
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Groundsure INSIGHTS

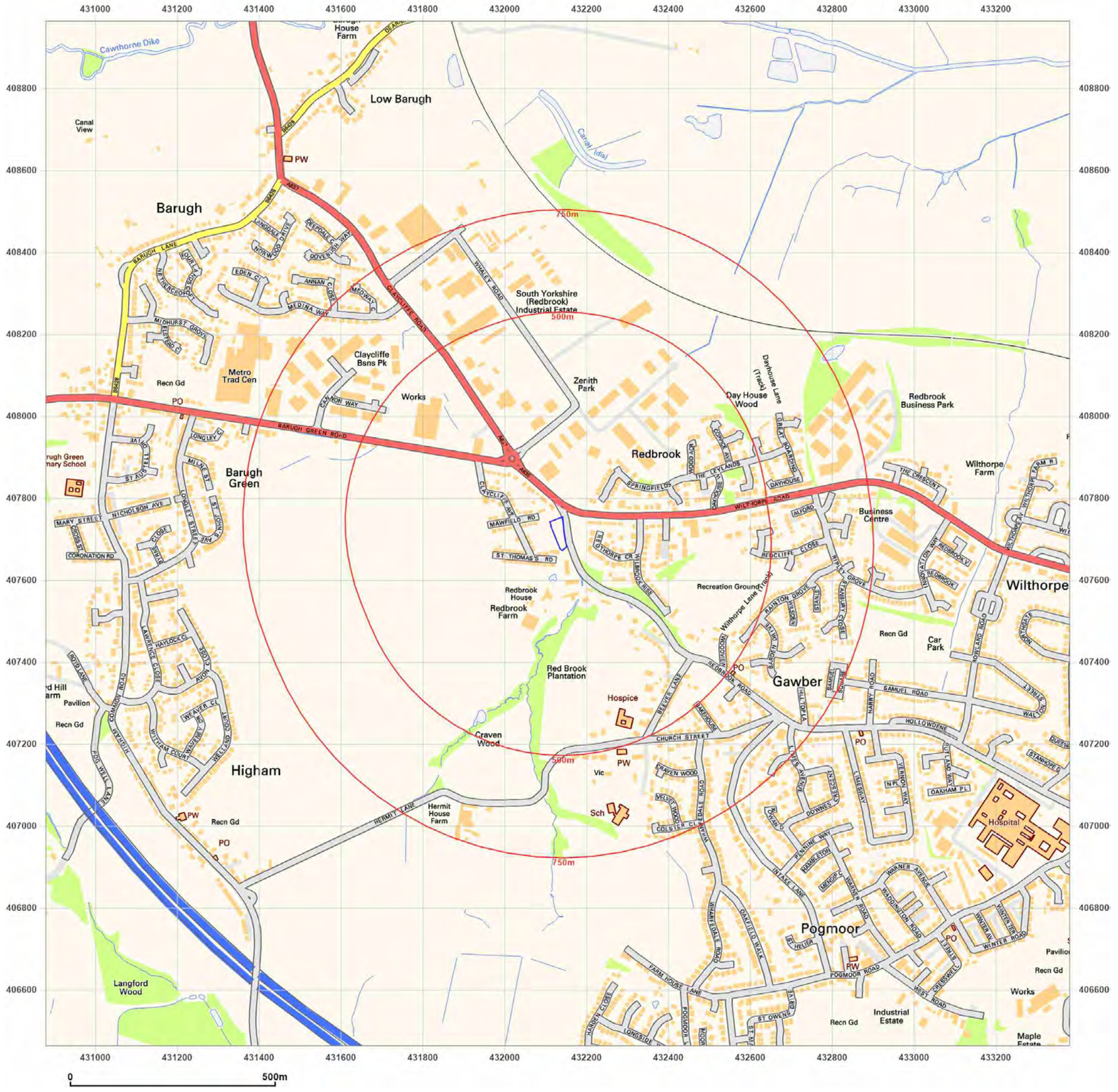
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S



Groundsure INSIGHTS

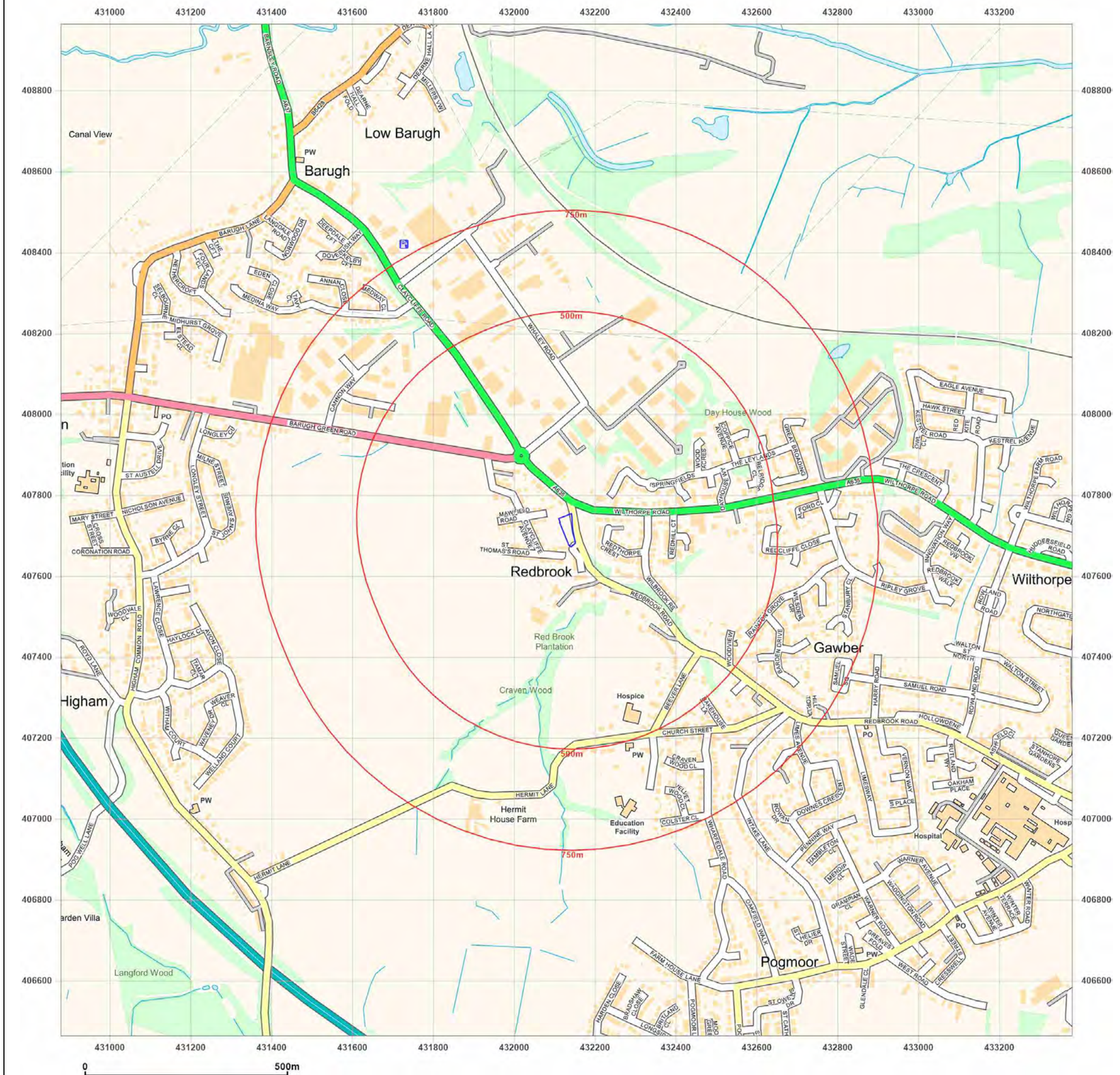
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



mdja

Site Details:

432113, 407708

Client Ref: Redbrook_Road_-_Barnsley
Report Ref: HMD-354-7845434
Grid Ref: 432130, 407714

Map Name: National Grid

Map date: **2021**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S



Groundsure INSIGHTS

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 11 May 2021

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

Appendix 3

Coal Authority Mining Report

The Coal Authority

Issued by:
The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

SEARCHFLOW LIMITED
42 KINGS HILL AVENUE
KINGS HILL
WEST MALLING
KENT
ME19 4AJ

Our reference:	**51000534939001**
Your reference:	**sf20807585000**
Date of your enquiry:	**19 May 2014**
Date we received your enquiry:	**19 May 2014**
Date of issue:	**20 May 2014**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

LAND AT, REDBROOK ROAD, BARNSLEY, SOUTH YORKSHIRE, S75 2RE

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 5 seams of coal at 40m to 340m depth, and last worked in 1980.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

All rights reserved. You must not reproduce, store or transmit any part of this document unless you have our written permission. --
© The Coal Authority --

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

There are 1 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the attached plan.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required in addition to that provided in this report, the Authority need to manually search their records. For further advice on how to order this additional information visit www.groundstability.com or telephone 0845 7626 848.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is in an area for which a notice of entitlement to withdraw support was published in 1977.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

© The Coal Authority

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006.

The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

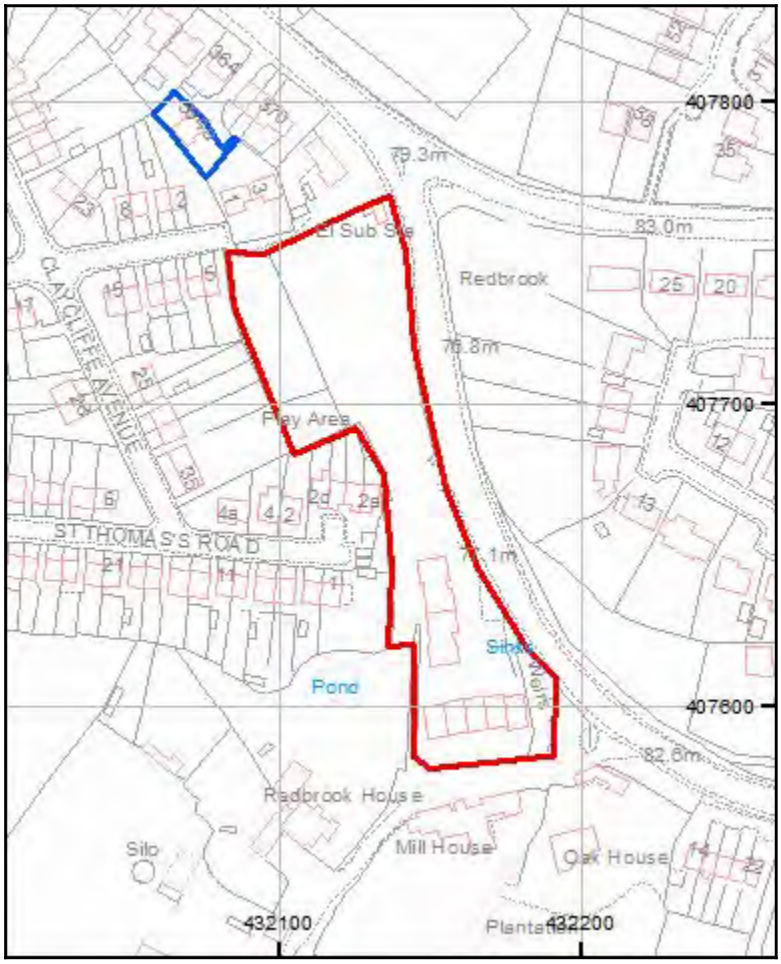
Location map

Approximate position of property



Enquiry boundary

Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2014. All rights reserved. Ordnance Survey Licence number: 100020315



Key

Approximate position of enquiry boundary shown

Coal Claims

Mapping sourced from Ordnance Survey

Standard Appendices

A and B

STANDARD APPENDIX A

NOTES ON SITE INVESTIGATION PROCEDURE (October 2019)

1. **GENERAL.** The ground investigation has been carried out in accordance with the principles of British Standards BS EN ISO 14688-1 and 2 "Geotechnical Investigation and testing – Identification and Classification of Soil" Parts 1 and 2 and BS EN ISO 14689: 2018 "Geotechnical Investigation and Testing – Identification and Classification of Rock". BS 5930: 2015 the Code of Practice for Site Investigation is partly superseded. This appendix briefly describes the nature of the work carried out. It also gives a brief description of the more important tests, which are made for engineering purposes on rocks and soils (see also BS 1377: 2016). By its very nature, any ground investigation only samples a small percentage of the ground. Consequently, changes in ground conditions and soil properties can occur between any two exploratory points, for example local features such as soft ground, pockets of contamination and faults. This is also true of the exploration of mineworkings and such features can extend beneath parts of the site not investigated. Unrecorded bell pits and shafts can also exist between exploratory points. The ground investigation is designed to minimise such risks but they cannot be eliminated.

2. **GROUND INVESTIGATION.**

2.1 **BOREHOLE AND TRIAL PIT RECORDS.** These illustrate the ground conditions only at the location of the particular borehole or trial pit. Correlation between boreholes is for guidance only and its accuracy cannot be guaranteed.

2.2 **SHELL AND AUGER BORING.** This technique uses a tripod winch and an essentially percussive action using a variety of tools. Disturbed and undisturbed samples can be taken. This is the most suitable method for soft ground investigation, enabling the maximum amount of information to be obtained. However, minor changes in lithology may be overlooked unless continuous undisturbed sampling is used.

2.3 **GROUNDWATER**. Groundwater levels vary seasonally and the details given on the borehole logs relate only to the dates and the conditions described in the borehole records. The rate of boring may not have allowed an equilibrium water level to be established and the use of casing may seal off certain seepages.

2.4 **SAMPLING.** Disturbed samples of soils are taken for identification and classification purposes. In cohesive soils 'undisturbed' samples 100mm in diameter are taken by open drive sampler for laboratory testing of strength, permeability and consolidation characteristics.

2.5 **STANDARD PENETRATION TESTS**. S.P.T tests are used in granular and cohesive materials and in soft or weathered rocks. Difficulties in obtaining true 'N' values mean they must only be used as a guide and not as an absolute value in foundation design.

2.6 **ROTARY DRILLING.** Two main types of rotary drilling are carried out in rock. Rock coring using diamond or tungsten carbide tipped core bits provides samples and information on rock types, fissuring and weathering. Openhole drilling only produces small particles for identification purposes and the information gained is therefore limited. The latter is, however, useful as a quick method for detecting major strata changes and for the location of coal seams and old workings. Water, air, foam or drilling muds may be used as the flushing medium in either case.

2.7 **PERMEABILITY TESTS.** These can be carried out in boreholes or trial pits and gives a good indication of in-situ permeability.

2.8 **TRIAL PITTING.** This enables soil conditions to be closely examined at any specific point and samples taken. It also gives useful information on the stability of excavations and ingress of water.

2.9 **WINDOW SAMPLING**. Window sampling consists of driving a series of 1m-long tubes into the ground using a dropping weight. On completion of each 1m run, the tube is withdrawn. The next tube is then inserted and the process repeated to provide a continuous profile of the ground. On each run the tube diameter is reduced in order to assist in its recovery.

2.10 **GAS MONITORING.** This is routinely carried out in trial pits or probe holes to check for elevated levels of methane and carbon dioxide or oxygen deficiency, particularly since risks can exist from natural gases, landfill sites and rising groundwater levels in mine workings below ground. Longer term monitoring is carried out with gas monitoring standpipes.

3. **SOIL DESCRIPTION.** Samples from borings or trial pits are described as specified in the standard procedure outlined in the British Standards. The description includes colour, consistency, structure, weathering, lithological type, inclusions and origin. All descriptions are based on visual and manual identification.

Fire Soils (Cohesive Soils)

The following field terms are used:

Soil Type	Description
Very soft	Exudes between fingers
Soft	Moulded by light finger pressure
Firm	Cannot be moulded by the fingers but can be rolled in hand to 3mm threads.
Stiff	Crumbles and breaks when rolled to 3mm threads but can be remoulded to a lump.
Very stiff	No longer moulded but crumbles under pressure. Can be indented with thumbs.

The following terms are used in accordance with the results of laboratory and field tests.

Description	Undrained Shear Strength Cu (kPa)
Extremely Low	<10
Very Low	10 - 20
Low	20 - 40
Medium	40 - 75
High	75 - 150
Very High	150 - 300
Extremely High	>300

Fine soils can also be classified according to their sensitivity, which is the ratio between undisturbed and remoulded undrained shear strength.

Sensitivity	Ratio
Low	8
Medium	8 - 30
High	>30
Quick	>50

Granular Soils (Non-Cohesive)

The following descriptions are used for granular soils.

Description	Normalised Blow Count (N_1) 60
Very Loose	0 - 3
Loose	3 - 8
Medium	8 - 25
Dense	25 - 42
Very Dense	42 - 58

4. **NATURAL OR IN-SITU MOISTURE CONTENT**. The natural or in-situ moisture content of a soil is defined as the weight of water contained in the pore space, expressed as a percentage of the dry weight of solid matter present in the soil. Soil properties are greatly affected by the moisture content and the test can help to give an indication of likely engineering behaviour.

5. **LIQUID AND PLASTIC LIMITS**. Two simple classification tests are known as the liquid and plastic limits. If a cohesive soil is remoulded with increasing amounts of water, a point will be reached at which it ceases to behave as a plastic material and becomes essentially a viscous fluid. The moisture content corresponding to this change is arbitrarily determined by the liquid limit test. 'Fat' clays, which have high contents of colloidal particles, have high liquid limits; 'lean' clays, having low colloidal particle contents have correspondingly low liquid limits. An increase in the organic content of a clay is reflected by an increase in the liquid and plastic limits.

   If a cohesive soil is allowed to dry progressively, a point is reached at which it ceases to behave as a plastic material, which can be moulded in the fingers, and it becomes friable. The moisture content of the soil at this point is known as the 'plastic limit' of the soil.

   The range of water content over which a cohesive soil behaves plastically, i.e. the range lying between the liquid and plastic limits, is defined as the plasticity index.

   A cohesive soil with a natural water content towards its liquid limit will, in general, be an extremely soft material whereas a cohesive soil with a natural water content below its plastic limit will tend to be a stiff material.

6. **PARTICLE-SIZE DISTRIBUTION.** A knowledge of particle-size distribution is used to classify soils and to indicate likely engineering behaviour. British Standards define soils in relation to their particle-size as shown below:-

Boulders	>200mm	Coarse Sand	2.0 to 0.63mm
Cobbles	200 to 63mm	Medium Sand	0.63 to 0.2mm
		Fine Sand	0.2 to 0.063mm
Coarse Gravel	63 to 20mm	Coarse Silt	0.063 to 0.02mm
Medium Gravel	20 to 6.3mm	Medium Silt	0.02 to 0.0063mm
Fine Gravel	6.3 to 2mm	Fine Silt	0.0063 to 0.002mm
		Clay	<0.002mm

7. **BULK DENSITY.** The bulk density of a material is the weight of that material per unit volume and includes the effects of voids whether filled with air or water. The 'dry density' of a soil is defined as the weight of solids contained in a unit volume of the soil.

8. **PERMEABILITY.** The permeability of a material is defined as the rate at which water flows through it per unit area of soil under unit hydraulic gradient.

9. **CONSOLIDATION CHARACTERISTICS.** When subjected to pressure, a soil tends to consolidate as the air or water in the pore space is forced out and the grains assume a denser state of packing. The decrease in volume per unit of pressure is defined as the 'compressibility' of the soil, and a measure of the rate at which consolidation proceeds is given by the 'coefficient of consolidation' of the soil. These two characteristics Mv and Cv are determined in the consolidation test and the results are used to determine settlement of structures or earthworks.

10. **STRENGTH CHARACTERISTICS.** The strength of geological materials is generally expressed as the maximum resistance that they offer to deformation or fracture by applied shear or compressive stress. The strength characteristics of geological materials depend to an important degree on their previous history and on the conditions under which they will be stressed in practice. Consequently, it is necessary to simulate in the laboratory tests the conditions under which the material will be stressed in the field.

In general, the only test carried out on hard rocks is the determination of their compressive strength but consideration must be given to fissuring, jointing and bedding planes.

The tests at present in use for soils and soft rocks fall into two main categories. Firstly, those in which the material is stressed under conditions of no moisture content change, and secondly those in which full opportunity is permitted for moisture content changes under the applied stresses. Tests in the first category are known as undrained (immediate or quick) tests, while those in the second category are known as drained (slow or equilibrium) tests. The tests are normally carried out in the triaxial compression apparatus but granular materials may be tested in the shear box apparatus.

The undrained triaxial test gives the apparent cohesion C_u and the angle of shearing resistance $\emptyset_u$. In dry sands, $C_u = 0$ and $\emptyset_u$ is equal to the angle of internal friction whereas with saturated non-fissured clays Øu tends to 0 and the apparent cohesion C_u is equal to one-half the unconfined compression strength qu. On site the vane test gives an approximate measure of shear strength.

For some stability problems use is made of a variant of the undrained triaxial test in which the specimen is allowed to consolidate fully under the hydrostatic pressure and is then tested to failure under conditions of no moisture content change. This is known as the consolidated undrained triaxial test. Pore water pressures may be measured during this test or a fully drained test may be carried out. In either case the effective shear strength parameters C' and Ø' can be obtained which can be used to calculate shear strength at any given pore water pressure.

11. **COMPACTION.** The density at which any soil can be placed in an earth dam, embankment or road depends on its moisture content and on the amount of work which is used in compaction. The influence of these two factors can be studied in compaction tests, which can determine the maximum dry density (MDD) achievable at a certain optimum moisture content (OMC).

12. **CALIFORNIA BEARING RATIO TEST.** In flexible pavement design a knowledge of the bearing capacity of the subgrade is necessary to enable the thickness of pavement for any particular combination of traffic and site conditions to be determined. The quality of the subgrade can be assessed by means of the California Bearing Ratio Test or approximately by the MEXE cone penetrometer.

13. **ROCK DESCRIPTION.** This is based on;

i. Colour (minor then principal colour).
ii. Grain Size.

Description	Predominate Grain Size (mm)
Very Coarse - grained	>63
Coarse - grained	63 - 2
Medium - grained	2 - 0.063
Fine - grained	0.063 - 0.002
Very Fine - grained	<0.002

iii. Matrix.
iv. Weathering.

Term	Description
Fresh	No visible sign of weathering/alteration of the rock material.
Discoloured	The colour of the original fresh rock material is changed and is evidence of weathering/alteration. The degree of change from the original colour should be indicated. If the colour change is confined to particular mineral constituents, this should be mentioned.
Disintegrated	The rock material is broken up by physical weathering, so that bonding between grains is lost and the rock is weathered/altered towards the condition of a soil in which the original material fabric is still intact. The rock material is friable but the grains are not decomposed.
Decomposed	The rock material is weathered by the chemical alteration of the mineral grains to the condition of a sol in which the original material fabric is still intact; some or all of the grains are decomposed.

v. Carbonate Content.
vi. Stability of Rock Material.

Stable indicates no changes when sample left in water for 24 hours. Fairly stable indicates fissuring and crumbling of surfaces. Unstable indicates complete disintegration of the sample.

vii. Unconfined Compressive Strength.

Term	Field Identification	Unconfined Compressive Strength (MPa)
Extremely Weak[a]	Indented by thumbnail.	Less than 1
Very Weak	Crumbles under firm blows with point of geological hammer, can be peeled by a pocket knife.	1 to 5
Weak	Can be peeled by a pocket knife with difficulty, shallow indentations made by firm blow with point of geological hammer.	5 to 25
Medium Strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with single firm blow of geological hammer.	25 to 50
Strong	Specimen required more than one blow of geological hammer to fracture it.	50 to 100
Very Strong	Specimen requires many blows of geological hammer to fracture it.	100 to 250
Extremely Strong	Specimen can only be chipped with geological hammer.	Greater than 250

[a] Some extremely weak rocks will behave as soils and should be described as soils.

viii. Structure.

Sedimentary	Metamorphic	Igneous
Bedded	Cleaved	Massive
Interbedded	Foliated	Flowbanded
Laminated	Schistose	Folded
Folded	Banded	Lineated
Massive	Lineated	
Graded	Gneissose	
	Folded	

ix. Discontinuities.

x. Discontinuity Spacing, persistence and roughness, infilling and seepage.

xi. Weathering of the Rock Mass.

Term	Description	Grades
Fresh	No visible sign of rock material weathering; perhaps slight discolouration on major discontinuity surfaces.	0
Slightly weathered	Discolouration indicates weathering of rock material and discontinuity surfaces.	1
Moderately weathered	Less than half of the rock material is decomposed or disintegrated. Fresh or discoloured rock is present either as a continuous framework or as core stones.	2
Highly weathered	More than half of the rock material is decomposed or disintegrated. Fresh or discoloured rock is present either as a continuous framework or as core stones.	3
Completely weathered	All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact.	4
Residual soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soils has not been significantly transported.	5

xii. Rock Mass Permeability

14. **CHEMICAL TESTS.** A knowledge of total soluble sulphate content and pH of soils and groundwater is important in determining the protection required for concrete or steel in contact with the ground. Other specialist tests may be carried out on sites suspected of being contaminated by toxic materials (see standard appendix B).

15. **REFERENCES** (where applicable)

ICE: Effective Site Investigation (2013)
The Coal Authority: Guidance on Managing the Risk of Hazardous Gases when Drilling or Piling Near Coal, 2013
Site Investigation Practice by Michael D Joyce; E & F N Spon 1982.

BRITISH STANDARDS

BS3882: 2015 British Standard Specification for Topsoil
BS5930: 2015 British Standard Code of Practice for Site Investigations
BS8485: 2015 British Standard Code of Practice for the design and protective measures from methane and carbon dioxide ground gases for new buildings
BS10175: 2011+A1:2013 British Standard Code of Practice for the Investigation of Potentially Contaminated Sites

STANDARD APPENDIX B

NOTES ON CONTAMINATION INVESTIGATION PROCEDURE (October 2019)

1. **GENERAL.** The desk study and/or intrusive ground investigation is typically carried out in accordance with the requirements of BS5930: 2015 and BS10175: 2011+A1: 2013. In relation to contamination the desk study is referred to as the preliminary investigation in BS10175 and the intrusive ground investigation is referred to as the Exploratory Investigation. This appendix briefly describes the nature of the work carried out and explains the standards against which contamination data has been assessed. The nature of any contamination investigation is such that only a small percentage of the ground, and therefore potential contamination, is sampled. Consequently variations in both ground conditions and contaminant levels can occur between any two sampling positions. The contamination investigation is designed to minimise such risks, but they cannot be eliminated.

2. **REVIEW OF CONTAMINATION ISSUES –** The National Planning Policy Framework (NPPF) and Part 2A of the Environmental Protection Act 1990 create a new regime for the identification and remediation of contaminated land. It introduced a definition of contaminated land described in Section 78A(2) of the Act of:

"any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that

(a) significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused:

Both Part 2A and the planning regime embrace the "suitable for use" approach. In the context of Part IIA, action is necessary only where there are unacceptable risks to health or to the environment, taking into account the current use of the land and its environmental setting.

For humans, significant harm is defined as "death, disease, serious injury ". Specifically, disease is taken to mean an unhealthy condition of the body or part of it. "Significant possibility of significant harm" is described as health effects arising from the intake of a contaminant or other direct bodily contact with the contaminant where the intake or exposure is unacceptable. The assessment should also take into account the total intake from all sources, the relative contribution of the pollutant linkage in question, and the duration of intake or exposure. The various statutory definitions are given overleaf.

The presence of unnatural substances does not automatically constitute a risk unless there is a link or pathway between the contamination (the hazard) and the receptor (the target) be it humans, the environment or property. Therefore the assessment needs to determine whether a hazard is present and whether the necessary pathway exists the so-called "pollution linkage" or “conceptual site model”.

The effect of any hazard on a site depends primarily on the site use and groundwater conditions since these determine who and what may be at risk and the routes by which they may be exposed to the hazard. Site uses can include allotments, domestic gardens on residential developments, amenity and recreational areas, public open space and industrial and commercial buildings. On any site, the potential contaminants have to be identified together with the potential receptors. The pathway for that contaminant to reach its target has then to be considered.

3. **PRELIMINARY INVESTIGATION.** The preliminary Phase I Geoenvironmental Assessment (desk study) report normally considers the following key sections:

Introduction	
The Site	Contaminated Land
Site History	Radon
Geology and Mining	Geoenvironmental Risk Assessment
Hydrogeology	Geotechnical Assessment
Groundsure Geo-Insight and Enviro-Insight	Ground Investigation (Recommendations)

The report will summarise the findings and also relate our opinions to the potential for a site to be geoenvironmentally impaired, at levels likely to warrant mitigation or further consideration appropriate to the current or future use.

Findings are based on information obtained and described during the desk study and site inspection without intrusive ground investigation. It is possible that further information exists. The absence of indicators of impairment does not mean that such impairment does not exist. Additional investigation including intrusive methods can reduce the risks but cannot eliminate them and may not be cost effective. We can advise on the additional research opportunities, their cost and their possible impact on mitigating risk. Recommendations are normally given based on the redevelopment proposals for the site.

Type of Receptor	Description of harm that is to be regarded as significant harm	Conditions For There Being A Significant Possibility Of Significant Harm
1. Human beings	Death, disease, serious injury, genetic mutation, birth defects or the impairment of reproductive functions. For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.	If the amount of the pollutant in the pollutant linkage represents an unacceptable intake or direct bodily contact, assessed on the basis of relevant information on the toxicological properties of that pollutant. Such an assessment should take into account: • the likely total intake of, or exposure to, the substance or substances which form the pollutant, from all sources including that from the pollutant linkage in question; • the relative contribution of the pollutant linkage in question to the likely aggregate intake of, or exposure to, the relevant substance or substances; and • the duration of intake or exposure resulting from the pollutant linkage in question. The question of whether an intake or exposure is unacceptable is independent of the number of people who might experience or be affected by that intake or exposure. Toxicological properties should be taken to include carcinogenic, mutagenic, teratogenic, pathogenic, endocrine-disrupting and other similar properties.
2. All other human health effects (particularly by way of explosion or fire)		If the probability, or frequency, of significant harm of that description is unacceptable. The pollutant linkage might cause "significant harm which" • would be irreversible or incapable of being treated; • would affect a substantial number of people; • would result from a single incident such as a fire or an explosion; or • would be likely to result from a short-term (lees than 24-hour) exposure to the pollutant.
3. Any ecological system, or living organism forming part of such a system, within a location which is protected.	For any protected location: • harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or • harm which affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location.	If either: • significant harm of that description is more likely than not to result from the pollutant linkage; or • there is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration.
4. Property in the form of: • crops, including timber; • produce grown domestically, or on allotments, for consumption; • livestock; • other owned or domesticated animals; • wild animals which are the subject of shooting or fishing rights.	For crops, a substantial diminution in yield or other substantial loss in the value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.	If significant harm of that description is more likely than not to result from the pollutant linkage in question.
5. Property in the form of buildings.	Structural failure, substantial damage or substantial interference with any right of occupation.	If significant harm of that description is more likely than not to result from the pollutant linkage in question during the expected economic life of the building.
6. Controlled waters.		

4. **INTRUSIVE INVESTIGATION.** BS10175 describes this as an exploratory investigation. Intrusive ground investigation is described in Standard Appendix A. During the investigation representative or indicative samples are obtained for testing by an accredited laboratory. The aim is to determine (with a degree of confidence appropriate to the objectives), the presence, concentration and distribution of contaminants in respect of those points investigated. The extent of any necessary intrusive investigation will depend on the size of the site and any hazards, either known or suspected.

5. **ASSESSMENT OF CONTAMINATION.** The assessment of contaminated land under the terms of Part II A of the Environmental Protection Act 1990 is based upon pollution linkage (source - pathway - receptor model).

The Contaminated Land Report (CLR) series of documents have been produced by the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency, to provide regulators with "relevant, appropriate, authoritative and scientifically based information and advice on the assessment of risk from contamination in soils".

The Environment Agency issued a number of Soil Guideline Values (SGVs), which whilst non-binding, were used as guidance in the assessment of land and in setting remediation targets. They should only be applied to human health assessments. It should however be noted that these have now officially been withdrawn.

The SGVs were derived using the Contaminated Land Exposure Assessment Model (CLEA) and are based on assumptions relating to soil conditions, pollutant type and behaviour, land use patterns and the availability of receptors. SGVs were also subject to statistical assessment. The CLR documentation requires that the results of laboratory testing are subject to statistical analysis to remove uncertainty over a so-called 'averaging area'.

To date only selective SGVs were issued for the following land-uses

- Residential with and without plant uptake
- Allotments
- Commercial/Industrial

Soil Guideline Values (mg/kg)(1)			
Analyte	**Residential (with home grown produce)**	**Allotments**	**Commercial**
Arsenic	32 (37)	49	(640)
Cadmium	10 (22)	3.9	230 (410)
Chromium (total)	130 (21 for Cr vi)	170 (for Cr vi)	5000
Mercury	170	80	3600
Nickel	130	230	1800
Selenium	350	120	13000
Lead (2)	450 (82)	(80)	(2300)
Toluene	610	120	4400
Ethylbenzene	350	90	2800
Phenol	420	280	3200
Benzene	0.33 (0.87)	0.07	95
o-xylene	250	160	2600
m-xylene	240	180	3500
p-xylene	230	160	3200
Copper (2)	2330	524	71,700
Zinc (2)	3750	618	665,000
Benzo(a)pyrene (2)	1.0 (5.0)	2.1	14
Naphthalene (2)	8.7	23	1100
Flourene (2)	780	160	71,000

(1) Now officially withdrawn
(2) Generic Assessment Criteria (mg/kg) derived by LQM / CIEH
(3) Geometric mean value across site
(4) The figures in brackets are the latest C4SLs (see later in text)

DEFRA previously issued "Outcome of the Way Forward Exercise on Soil Guideline Values". This document was intended to provide guidance to determine if there is a Significant Possibility of Significant Harm (SPOSH) i.e. whether land meets the legal trigger of being contaminated land.

In the context of Part 2A, a risk assessor using an SGV would conclude the following (DEFRA, 2008).

- At a representative average soil concentration at or below an SGV, it is very unlikely that there will be a *significant possibility of significant harm (SPOSH)*.

- At a representative average soil concentration above an SGV, there *might* be a *significant possibility of significant harm* with the significance linked to the margin of exceedance, the duration and frequency of exposure, and other site-specific factors that the enforcing authority may wish to take into account. Further investigation and/or detailed evaluation will usually be required.

It should be stressed that where there is any uncertainty as to whether or not there is a SPOSH, it was the policy of this practice to adopt a conservative approach, particularly in the adoption of clean cover systems.

In April 2012, Defra both published new Statutory Guidance which forms a major part of their contaminated land regimes under Part 2A of the Environment Protection Act 1990. The regime provides a means of dealing with contaminated land which poses a significant risk to human health or the environment where there is no alternative solution. It also works alongside planning rules and building regulations to help ensure that affected land is made suitable for use when it is redeveloped.

Since the regime was introduced in 2000 there has been considerable uncertainty over how to decide when land is, and is not contaminated land on grounds of the legal test of *significant possibility of significant harm to human health or the environment*.

To help address this, one of the main changes set out in the new Statutory Guidance, is the introduction of a new four category test to help decide when land is, and is not, contaminated land on grounds of *significant possibility of significant harm to human health*. Under the new four category test:

- Category 1 describes land that is clearly contaminated land, for example because similar land is known to have caused significant harm in the past.

- Categories 2 and 3 cover less straightforward land where more detailed consideration is needed before the regulator can decide either: (a) that there is a strong case for regulatory action, in which case the land would be in Category 2 and be classified as contaminated land under Part 2A; or (b) that such a case does not exist, in which case the land would be in Category 3 and not be classified as contaminated land under Part 2A.

- Category 4 describes land that is clearly not contaminated land, as discussed below.

One of the main purposes of including the Categories in the Statutory Guidance is to provide a legal framework against which new technical tools can be developed by the land contamination sector to describe the Categories in more detail with regard to specific substances and/or situations.

The new Category 4 test is particularly important in terms of reducing uncertainty over when land is definitely not caught by the regime.

The new Statutory Guidance makes clear what land should be placed into Category 4, for example:

(a) Land where no relevant contaminant linkage has been established.

(b) Land where there are only normal levels of contaminants in soil (as explained in Section 3 of the guidance), unless there is a particular reason to consider otherwise. In other words land with normal background concentrations in the soil.

(c) Land that has been excluded from the need for further inspection and assessment under Part 2A because contaminant levels do not exceed relevant generic assessment criteria in accordance with Section 3 of the guidance, or relevant technical tools or advice that may be developed in accordance with paragraph 3.30 of the guidance, e.g. Category 4 Screening Levels.

(d) Land where estimated levels of exposure to contaminants in soil are likely to form only a small proportion of what a receptor might be exposed to anyway through other sources of environmental exposure (e.g. in relation to average estimated national levels of exposure to substances commonly found in the environment, to which receptors are likely to be exposed to in the normal course of their lives).

The guidance clarifies how generic assessment criteria (including the currently available SGVs/GACs) should and should not be used. It states that:

3.27 It is common practice in contaminated land risk assessment to use "generic assessment criteria" (GACs) as screening tools in generic quantitative human health risk assessment to help assessors decide when land can be excluded from the need for further inspection and assessment, or when further work may be warranted.

3.28 Local authorities may use GACs and other technical tools to inform certain decisions under the Part 2A regime, provided: (i) they understand how they were derived and how they can be used appropriately; (ii) they have been produced in an objective, scientifically robust and expert manner by reputable organizations; and (iii) they are only used in a manner that is in accordance with Part 2A and this Guidance.

3.29 GACs relating to human health risk assessment represent cautious estimates of levels of contaminants in soil at which there is considered to be no risk to health or, at most, a minimal risk to health. With regard to such GACs:

(a) They may be used to indicate when land is very unlikely to pose a significant possibility of significant harm to human health. This is on the basis that they are designed to estimate levels of contamination at which risks are likely to be negligible or minimal and far from posing a significant possibility of significant harm to human health.

(b) They should not be used as direct indicators of whether a significant possibility of significant harm to human health may exist. Also, the local authority should not view the degree by which GACs are exceeded (in itself) as being particularly relevant to this consideration, given that the degree of risk posed by land would normally depend on many factors other than simply the amount of contaminants in soil.

(c) They should not be seen as screening levels which describe the boundary between Categories 3 and 4 in terms of Section 4 (i.e. the two Categories in which land would not be contaminated land on grounds of risks to human health). In the very large majority of cases, these SGVs/GACs describe levels of contamination from which risks should be considered to be comfortably within Category 4.

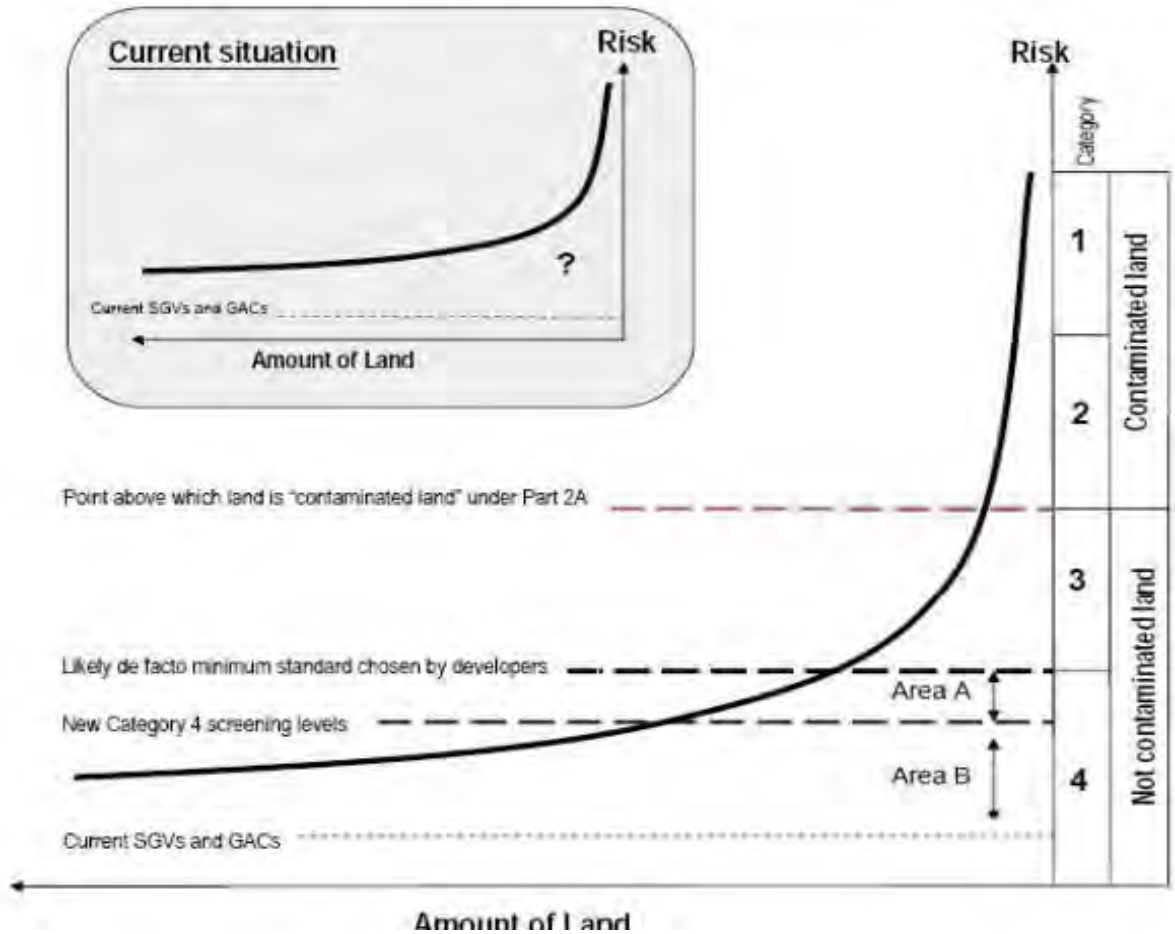
(d) They should not be viewed as indicators of levels of contamination above which detailed risk assessment would automatically be required under Part 2A.

(e) They should not be used as generic remediation targets under the Part 2A regime. Nor should they be used in this way under the planning system, for example in relation to ensuring that land affected by contamination does not meet the Part 2A definition of contaminated land after it has been developed.

The way in which the new four category system is intended to operate and the place of the C4SLs within that system, was explained in detail in the Impact Assessment which accompanied the Statutory Guidance. Please note that although the detail of the Impact Assessment is included here to provide clarity on the job expected of C4SLs, the Statutory Guidance, itself, sets out the regime that needs to be delivered under Part 2A.

Paragraph 47 of the Impact Assessment describes the diagram in detail. Of particular relevance to this project is the description of the overall diagram (sub-paragraph a), description of category 4 (sub-paragraphs c (part iv) and h) and the description of how the monetised benefits of the new system will be realised (sub-paragraph h). These sub-paragraphs are reproduced below.

Diagram showing the new Category 1-4 system (compared to current situation)



The diagram above seeks to illustrate, in a simplified manner, broadly what the changes to the statutory guidance on significant possibility of significant harm to human health are intended to achieve. To explain:

(a) The curved line and axes illustrate the spectrum of risk presented by land contamination. The idea is to show that a very large amount of land is low risk, and only a small amount of land would pose sufficient risk to be contaminated land in the legal sense. The axes and lines in the diagrams are not to scale, and they have been compressed for the purposes of illustration (in reality the risks on Category 1 land would probably be orders of magnitude above Category 4 risks, and vastly more land would be in Category 4 compared to the other Categories).

(b) The smaller diagram summarizes the current situation. In the area below the SGV/GACs there is near certainty that land is not contaminated land, however, above the line there is increasing uncertainty. As explained above, currently remediation usually occurs to just below the SGV/GAC level because they are perceived as offering the only cast-iron guarantee of when land is definitely not contaminated land. Sometimes consultants are employed to justify remediating to levels above the SGV/GACs, however the further they go away from the SGV/GACs the more legal risk they and their clients are exposed to.

(c) The new statutory guidance will end the current situation, and it would not be legally possible e.g. for individual regulators to ignore the changes being made. For example, as explained above, the new statutory guidance will specifically say:

(i) that Part 2A cannot be used to force remediation to below a point where it ceases to be contaminated land in the legal sense i.e. the Category 2/3 border in terms of the diagram), although responsible parties can choose to go further;

(ii) that SGV/GACs cannot be used as one size fits all remediation thresholds under either Part 2A of the planning system;

(iii) that normal background levels of contamination are not caught by Part 2A; and

(iv) that SGV/GACs are well into Category 4, sometimes by only a few times and sometimes by orders of magnitude. These changes and others also provide the legal backing for the development e.g. of Category 4 screening levels, as discussed below.

(d) The new Category 1-4 system divides the spectrum of risk posed by contaminated land into four different categories, and the statutory guidance will explain how to decide when land falls into each Category. This is more sophisticated than the current statutory guidance, which in effect has only two categories (contaminated land or not) and does not explain how to decide which category land falls into. The new Category 1-4 system reflects what assessors find when they investigate real sites i.e. some are clearly contaminated land (Category 1) ; some clearly are not (Category 4) and some are less-straightforward and need some level of detailed assessment before a decision can be taken as to whether or not they are contaminated land (Categories 2 and 3).

(e) In the case of Category 2 and 3 sites, the regulator will have flexibility to take decisions within the parameters set by the new Guidance. There would be less flexibility for Category 2 and 3 sites that clearly pose either a high or low risk. However, the regulator will have considerable flexibility for sites closer to the Category 2/3 border to judge which side of the border a site would fall (e.g. taking account of their understanding of the risks, uncertainties and the interests of the local community). These are often complex decisions which need to be taken case-by-case given the many factors involved.

(f) In the case of Categories 1 and 4 the regulator will have far less flexibility. For example, if a regulator claimed that a site matching the Category 1 description was not contaminated land, or that a site matching the Category 4 description was contaminated land, they would be acting directly against the statutory guidance which the Act requires that they follow, and decisions could be challenged (e.g. in a law court) with a high chance that the challenge would be successful. Among other things, the intention of doing this is to create far more legal certainty around when land is definitely not contaminated land in the legal sense. With the specific wording of the new statutory guidance, and the supporting tools such as the new Category 4 screening levels, it would be very difficult for a regulator e.g. to threaten landowners with the Part 2A regime, and if they tried to determine land as contaminated land they would be operating in direct opposition to the statutory guidance.

(g) In the many consultation meetings held in developing the Category 1-4 system, all the developers, landowners and consultants we spoke to were strongly of the view that they would want the ensure their land is safely within Category 4 (even though in theory they could remediate to a level within Category 3 and still satisfy Part 2A and planning rules). They would do this for various reasons, including the fact that the flexibility granted to regulators in Categories 2 and 3 means that the further into Category 3 a site gets, the greater the risk that the regulator might decide it is in Category 2. Also they would want to be in Category 4 for reasons of marketability, future proofing etc. So developers and others would have a strong incentive to seek the regulatory certainty of being safely within Category 4. Thus, as far as development taking place under the planning system is concerned, Category 3 would, in effect, normally be a buffer which provides added reassurance that development falling within Category 4 will not be caught by the Part 2A regime.

(h) The new statutory guidance will bring about a situation where the current SGV/GACs are replaced with more pragmatic (but still strongly precautionary) Category 4 screening levels (C4SLs) which will provide a higher simple test for deciding that land is suitable for use and definitely not contaminated land. Above the C4SLs, in Area A on the diagram, there will be much stronger legal backing for experts to use their judgement to make sensible and precautionary decisions on when land should be considered to be towards the top end of Category 4, without fear that land may be caught as contaminated land. This recognizes that the generic C4SLs will not be able to describe the Category 3/4 border itself because they are generic and would therefore have to err on the side of caution whilst a detailed site specific assessment would be able to push further by looking at specific circumstances relating to a specific site.

(i) The very large majority of the monetized benefits of the changes to the regime discussed in this Impact Assessment manifest themselves in Category 4, and in particular in Areas A and B on the diagram. The main effects of moving to the new system would include Low risk land falling within Area B (pre-development) on the diagram would no longer have to be remediated because it would fall below the new C4SLs. Similarly land which is in Area A pre-development would no longer need to be remediated if justified by a detailed site-specific assessment. For these sites the cost of remediation would be removed altogether. The cost of remediating land which is initially in Categories 3, 2 or 1 would fall because it would be remediated to the new C4SL levels (or somewhere within Area A if there has been a detailed assessment) rather than the SGV/GAC level. This will have the overall effect of reducing the cost of remediation, with the effect varying according to specific site circumstances, the type of remediation etc. Generally the cost of remediation would fall for many affected brownfield land sites. This would have the general effect of making such land more economically viable for development. It would also mean that some land that is not currently economically viable to develop becomes reduce pressure to develop Greenfield land in some cases. The C4SLs will also speed up regulatory decisions on the reuse of brownfield land by providing a simple remediation standard.

The C4SLs are intended as "*relevant technical tools*" (in relation to Paragraph 4.2.1(c)) provides to help local authorities and others when deciding to stop further assessment of a site, on the grounds that it falls within Category 4 (Human Health).

The Impact Assessment (IA), which accompanied the revised SG (Defra, 2012b) provides further information on the nature and potential role of the C4SLs. Paragraph 47(h) of the IA states that:

> *"The new statutory guidance with bring about a situation where the current SGVs/GACs are replaced with more pragmatic (but still strongly precautionary) Category 4 screening levels (C4SLs) which will provide a higher simple test for deciding that land is suitable for use and definitely not contaminated land".*

A key distinction between the Soil Guideline Values (SGVs) and the C4SLs is the level of risk that they describe. As described by the Environment Agency (2009a):

> *"SGVs are guidelines on the level of long-term human exposure to individual chemicals in soils that, unless stated otherwise, are tolerable or pose a minimal risk to human health".*

C4SLs, therefore, should not be viewed as "SPOSH levels" and they should not be used as a legal trigger for the determination of land under Part 2A.

CL:AIRE (Contaminated Land: Application in Real Environments) has published "*Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination*". In it a series of C4SLs were proposed as follows;

Analyte	Residential (with home grown produce) (mg/kg)	Residential (without home grown produce) (mg/kg)	Allotments (mg/kg)	Commercial (mg/kg)	POS (mg/kg)
Arsenic	37	40	49	640	79
Benzene	0.87	3.3	0.18	98	140
Benzo(a)Pyrene	5	5.3	5.7	77	10
Cadmium	22	150	3.9	410	880
Chromium (vi)	21	21	170	49	21
Lead	200	310	80	2300	630

6. GEOENVIRONMENTAL RISK ASSESSMENT

6.1 **Potential Hazard Sources.** Ground contamination can occur through several causes, particularly from historical use of the site and is often linked to the processes of waste disposal, underground storage, open storage, process pipework, leaks, spillages, tanks, site filling and various other reasons. The contamination can either arise from site sources or be the result of migration from other sources off site.

6.2 **Potential Migratory Pathways.** The primary pathways are considered to be laterally or vertically downward through underlying strata or upward to the ground surface. Such pathways also provide the potential for contaminants to migrate towards local watercourses and groundwater.

6.3 **Potential Targets At Risk.** Potential environmental liabilities related to current legislation associated with contaminated land with regard to existing ownership and redevelopment are summarised.

The probability of a hazard, linked with its consequences, can be used to assess risk in accordance with the tables below for use in decision making.

Consequence of Pollution Linkage

Severe	Damage to human health. Substantial pollution of controlled waters. Significant change in ecosystem population. Irreparable damage to property.
Moderate	Non-permanent damage to human health. Minor pollution of controlled waters. Change in ecosystem. Damage to property.
Mild	Short term health effects. Slight pollution of controlled waters. Slight effect on ecosystem. Minor repairable damage to property.
Near Zero	No noticeable effect on human health. No significant pollution to controlled waters. No measurable effect on ecosystem densities. Non-structural cosmetic damage to property.

Decision Making

Probability of a hazard and an associated linkage	Consequences of a pollution linkage (hazard-pathway-target)			
	Severe	Moderate	Mild	Near Zero
High	High	High	Medium/low	Negligible
Medium	High	Medium	Low	Negligible
Low	High/medium	Medium/low	Low	Negligible
Unlikely	High/medium/low	Medium/low	Low	Negligible

Final overall risk is based on an assessment of probability of a hazard and its consequences. Risk categories are shown shaded in the table above and defined below.

Risk	Description
High	Site probably or certainly unsuitable for present use or environmental setting. Contamination probably or certainly present and likely to have an unacceptable impact on key targets. Urgent action needed.
Medium/ Moderate	Site may not be suitable for present use or environmental setting. Contamination may be present, and likely to have unacceptable impact on key targets. Action may be needed on the medium term.
Low	Site considered suitable for present use and environmental setting. Contamination may be present but unlikely to have unacceptable impacts on key targets. Action unlikely to be needed in present use.
Negligible	Site considered suitable for present use and environmental setting. Contamination may be present but unlikely to have unacceptable impacts on key targets. No action needed while site remains in present use.

The review of the information from the exploratory investigation may be such that a decision is made that there is no need for further investigation. Alternatively, it may be necessary to carry out a further main investigation.

The Environment Agency has set out guidance as to the classification of waste arising from construction sites in its document "The Definition of Waste" dated April 2006. This document outlines how waste is to be handled

The following activities are not regarded as a waste management activity requiring licencing.

1) Construction activities carried out for the purpose of producing a suitably engineered soil e.g. lime stabilisation, vibro-replacement and piling.

2) Uncontaminated materials produced on site (including excavated soils and materials from demolition) which can be reused without further treatment. Examples include site regrading and footing excavations.

   These must be done in accordance with the Planning Permission. Demolition material must be used in accordance with the quality protocols for the production of aggregates from inert waste, subject to appropriate testing and the lack of any harmful constituents. Uses include pipe bedding, backfill and sub-base.

3) Contaminated soils can be moved on-site providing they do not require treatment or containment. There should be no risk to the environment i.e. non-leachable and in accordance with Planning Permission. Relevant activities can include site regarding and use of materials below clean cover systems, capping, buildings and hardstanding.

Where contaminated materials have to be placed in an engineered cell to prevent pollution, then this would be classed as landfilling and require PPC permits. Any material taken off site is considered to be waste. However, this is under review. If material is waste, then there is a duty of care including ensuring material is transported by a registered carrier. The destination of material leaving the site should be regularly checked and Waste Transfer Notes kept.

Clean Cover Systems

According to the Environment Agency's Remediation Position Statements of May 2006, the placement of a cover system using "clean" material is not treatment of waste. Consequently, no licensing/permitting position statements are applicable to this type of remediation. If the cover system uses 'waste materials' in its construction, waste management licensing exemption paragraph 9A may be applicable to its installation. If the installation of the proposed cover system does not meet the criteria for registration of this exemption, the activity may be regulated through a waste management site licence.

7. WASTE ACCEPTANCE CRITERIA (WAC)

The main objective of the Landfill Directive is to prevent or reduce as far as possible the negative effects of landfilling waste on the environment and on human health. It is intended to reduce the disposal of waste materials to landfills and to encourage more sustainable approaches to dealing with wastes. It bans the landfill of liquids and certain solid wastes, introduces requirements for the treatment of wastes prior to landfill and provides for the classification of landfills as sites for inert, hazardous or non-hazardous waste and prohibits co-disposal.

It sets out procedures for waste acceptance at landfills and the types of waste for each class of landfill as specified by Waste Acceptance Criteria (WAC). The WAC are predominantly lists of "limit values" for certain parameters obtained from standard leaching tests of wastes going to landfills. WAC are set out in the Landfill Directive itself. Full details can be found in the Environment Agency document "Guidance for waste destined for disposal in landfills" Version 3.1:2010.

8. MAIN REFERENCES

British Standards	BS3882: 2015 British Standard Specification for Topsoil BS5930: 2015 British Standard Code of Practice for Site Investigations BS8485: 2015 British Standard Code of Practice for the design and protective measures from methane and carbon dioxide ground gases for new buildings BS10175: 2011+A1:2013 British Standard Code of Practice for the Investigation of Potentially Contaminated Sites
BRE	Radon: Guidance on protective measures for new dwellings, BR211, 2015 Protective measures for housing on gas-contaminated land, BR414, 2015 Cover systems for land regeneration, 2004 Concrete in aggressive ground. Special Digest SD1, 3rd Edition, 2005 Soakaway Design (DG365)
CIEH	The LQM / CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd Edition)
CIRIA	Assessing risks posed by hazardous ground gases to buildings, CIRIA C665 Asbestos in Soil and Made Ground: a guide to understanding and managing risks, CIRIAC733, 2014 Good Practice on the testing and verification of protection systems for buildings against hazardous ground gases. C735:2014
CL:AIRE	Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, SP1010, 2013
DEFRA	Contaminated Land Report CLR 11, 2002 (7-10 withdrawn) R & D Publications TOX 1 – 12, 14, 16 – 25 R & D Publications SGV 1, 3, 4, 5, 7, 8, 9, 10, 15 and 16 (withdrawn) Improvements to Contaminated Land Guidance - "Outcome of the "Way Forward", 2008 Exercise on Soil Guideline Values. July 2008 Guidance on the Legal Definition of Contaminated Land. July 2008 Simplification of the Contaminated Land Regime Impact Assessment No: Defra 1133
DETR	Circular 02/2000. Contaminated Land, 2000 Guidelines for Environmental Risk Assessment and Management, 2000
Environment Agency	Guidance for the Safe Development of Housing on Land Affected by Contamination, 2000 Guidance for waste destined for disposal in landfills, 2010 Protective measures for housing on gas-contaminated land Remediation Position Statements, May 2006 Guidance and monitoring of landfill leachate, groundwater and surface water Human health toxicological assessment of contaminants in soil (Science Report SC050021/SR2) 2008 Updated technical background in the CLEA model (Science Report SC0520021/SR3)
HMSO	Part 2A of the Environmental Protection Act Part 2A Statutory Guidance – April 2012 Contaminated Land (England) Regulations 2006 The Contaminated Land (England) (Amendment) Regulations 2012 The Water Act 2003 (Commencement No. 11) Order 2012
Institution of Civil Engineers	Contaminated Land: Investigation, Assessment and Remediation, 2nd Edition
NHBC	Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present, 2007

This list is not intended to be exhaustive.



Michael D Joyce Associates LLP

Geotechnical and Geoenvironmental Consultants

Charnock Court 6 South Parade Wakefield West Yorkshire WF1 1LR

Tel: 01924 360458

Web: www.geoenvironmental.co.uk Email: mdja@geoenvironmental.co.uk